NOTICE OF REGULAR CITY COUNCIL MEETING
CITY OF TOMBALL, TEXAS

MONDAY, MARCH 21, 2011

7:00 P.M.

Notice is hereby given of a meeting of the Tomball City Council, to be held on Monday, March 21, 2011 at 7:00 P.M., City Hall, 401 Market Street, Tomball, Texas 77375, for the purpose of considering the following agenda items. All agenda items are subject to action. The Tomball City Council reserves the right to meet in a closed session for consultation with attorney on any agenda item should the need arise and if applicable pursuant to authorization by Title 5, Chapter 551, of the Texas Government Code.

1.0 Call to Order

2.0 Invocation

- Led by Dean Unsicker, Rosehill Christian School

3.0 Pledges to U.S. and Texas Flags

- Led by Members of the Tomball High School Student Council

4.0 Public Comments and Receipt of Petitions *[At this time, anyone will be allowed to speak on any matter other than personnel matters or matters under litigation, for length of time not to exceed three minutes. No Council/Board discussion or action may take place on a matter until such matter has been placed on an agenda and posted in accordance with law.]*

5.0 Presentations:

- Stefan Bruns, Greetings from the City of Telgte, Germany

6.0 Reports and Announcements

- March 24-27, 2011 – **11th Annual German Heritage Festival**
- March 31, 2011 – **Youth Opportunities Fair**, hosted by City of Tomball HR Department at the Community Center – 2:00-4:30 p.m.
- April 2, 2011 – **Farmers Market Opens** – 9 a.m.-1:00 p.m. (Every Saturday)
- April 9, 2011 – **3rd Annual City of Tomball Bunny Run 5K and Kids 1 Mile**
- April 18-23, 2011 – **City of Tomball Spring Clean Up Week** – 8:00 a.m. to 4:30 p.m
- ***Walk Tomball!*** (every Saturday at 9:00 a.m. at the Depot)
- Appointments to TEDC Board of Directors will be on April 18 agenda (for terms expiring 5/2/11)
- Reports by City staff and members of council about items of community interest on which no action will be taken
    - Shawn Cox – Report on the Oilfield Helping Hands Event
    - David Kauffman – Update regarding School Zone Flashing Beacon Project
    - Lori Lakatos – Status of Proposals for Designated Parking Lots

7.0 Approve the Minutes of the Following Meetings:

- March 7, 2011 Special City Council and Planning and Zoning Commission Meeting
- March 7, 2011 Regular City Council Meeting

8.0 Old Business:

8.1 Approve, on Second Reading, Resolution No. 2011-03-TEDC, a Resolution of the City Council of the City of Tomball, Texas, Authorizing and Approving the Tomball Economic Development Corporation's Project to Expend Funds in Accordance with an Economic Development Agreement by and between the Corporation and Community Bank of Texas N.A. to Promote and Develop a New or Expanded Business Enterprise; Containing other Provisions relating to the Subject; and Providing for Severability - Approving, as a Project of the Corporation, an Agreement with Community Bank of Texas, N.A. to Make Direct Incentives to, or Expenditures for, Assistance with Infrastructure Costs related to the Development and Construction of a Commercial Building to be located at 28515 State Highway 249 in Tomball, Texas. The Estimated Amount of Expenditures for such Project is $60,000

8.2 Award Contract for Project No. 2011-02, South Wastewater Treatment Plant Headworks Replacement, to Lowest Responsive Bidder, JTR Constructors, Inc., in the amount of $256,250.00, and Authorize the City Manager to Execute the Necessary Contract for Construction.

8.3 Approve Professional Services Agreements with CLR, Inc. in the amount of $65,160.00 and Cobb Fendley & Associates, Inc. in the amount of $7,000.00 for

Professional Services related to Extension of Utilities located on Brown Road, extending westerly of State Highway 249 and easterly of Spring Creek Estates, and Authorize City Manager to Execute Agreements

8.4 Adopt, on Second Reading, Ordinance No. 2011-01, an Ordinance Amending Chapter 54, Peddlers and Solicitors, of the Code of Ordinances of the City of Tomball, Texas, by Providing Exceptions to the Regulations Established in Chapter 54; by Providing Regulations and Criminal Violations related to any Peddler who Refuses to Leave a Premises upon Notification to Leave or Not to Enter Such Premises; by Providing for Hours of Operation; by Prohibiting Misrepresentations by Peddlers; by Providing Regulations related to the Responsibility of Owners, Tenants and Lessees who Allow Peddlers to Utilize Their Property; by Providing for Compliance with the Home Solicitation Sales Act; by Providing for Regulations Related to Structures Erected or Maintained by Peddlers; by Providing Information Required to Obtain a Permit; by Providing Application and Permit Fees; by Providing Regulations related to the Approval, Denial, Issuance and Appeal of a Permit; by Providing certain Limitations and Prohibiting the Assignability of Permits; by Providing for the Required Contents of a Permit; by Providing for the Duration and Renewal of a Permit; Providing a Penalty in an Amount of Not More Than $500 for Violation of any Provision Hereof; Providing for Savings and Severability; Providing for Publication; and Making other Provisions and Findings related thereto.

9.0 New Business:

9.1 Approve, as a Project of the Corporation, an Agreement with Waukesha-Pearce Industries to make direct incentives to, or expenditures for, the creation or retention of primary jobs and that are found by the Board of Directors to be required or suitable for the development, retention, or expansion of manufacturing and industrial facilities: to wit: Waukesha-Pearce Industries expansion and development of its manufacturing facility located at 1720 Hicks Street, Tomball, Texas. The estimated amount of expenditures for such Project is $12,000.

9.2 Consideration and possible action regarding **ZONING CASE P11-302:** Request by David Kelly, on behalf of CMH Homes, Inc. (Clayton Homes), to amend the City's Comprehensive Zoning Ordinance to rezone approximately 2.57 acres of land, legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, within the City of Tomball, Harris County, Texas, generally located on the westerly side of State Highway 249, southerly of Alice Road, from the AG-Agricultural District to the C-Commercial District.

- Conduct a Public Hearing on **ZONING CASE P11-302**
- Adopt on First Reading, Ordinance No. 2011-02, an Ordinance of the City of Tomball, Texas, Amending its Comprehensive Zoning Ordinance by Changing the Zoning District Classification of Approximately 2.57 Acres of Land, Legally Described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, within the City of Tomball, Harris County, Texas, From the AG-Agricultural District to the C-Commercial District; Said Property Being Generally Located on the westerly side of State Highway 249, southerly of Alice Road; Providing for the Amendment of the Official Zoning Map of

the City; Providing for Severability; Providing for a Penalty of an amount not to exceed $2,000 for each day of violation of any Provision Hereof, Making Findings of Fact; and Providing for other Related Matters.

9.3 Consideration and possible action regarding **ZONING CASE P11-303:** Request by David Kelly, on behalf of CMH Homes, Inc. (Clayton Homes), for a Conditional Use Permit to operate a "Manufactured Home Display or Sales (New or Used)" facility. The property is an approximately 2.57-acre site, legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, generally located on the westerly side of State Highway 249, southerly of Alice Road at 27225 State Highway 249, Tomball, Texas.

- Conduct a Public Hearing on **ZONING CASE P11-303**
- Adopt on First Reading, Ordinance No. 2011-03, an Ordinance of the City of Tomball, Texas, Amending its Comprehensive Zoning Ordinance by Granting a Conditional Use Permit to CMH Homes, Inc., to operate a "Manufactured Home Display or Sales (New or Used)" Facility; Said Property Being Located within the City in Zoning District C-Commercial and Being Legally Described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, Generally Located on the westerly side of State Highway 249, Southerly of Alice Road in Tomball, Texas; Providing Requirements and Conditions for this Conditional Use Permit; Containing Findings and Other Provisions Relating to the Subject; Providing a Penalty in an amount not to exceed Two Thousand Dollars for Violations Hereof; and Providing for Severability.

9.4 Approve the 2010-2011 (Interim) Interlocal Agreement between the City of Tomball and the Tomball Independent School District (TISD), affording the Tomball Police Department the ability to assign a Student Resource Officer (SRO) to a TISD Campus.

9.5 Approve Service Agreement between the City of Tomball and the Sheriff's Association of Texas for Research and Evaluation of Gyroplane Aircraft used in Law Enforcement Operations.

10.0 Adjournment

C E R T I F I C A T I O N

I hereby certify that the above notice of meeting was posted on the bulletin board of City Hall, City of Tomball, Texas, a place readily accessible to the general public at all times, on the 18th day of March 2011 by 5:00 p.m., and remained posted for at least 72 continuous hours preceding the scheduled time of said meeting.

*Doris Speer*_____
Doris Speer
City Secretary, TRMC

This facility is wheelchair accessible and accessible parking spaces are available Requests for accommodations or interpretive services must be made 48 hours prior to this meeting. Please feel free to contact the City Secretary's office at (281) 290-1002 or FAX (281) 351-6256 for further information.

AGENDAS MAY ALSO BE VIEWED ONLINE AT www.ci.tomball.tx.us.

Regular City Council
Agenda Item
Data Sheet

Meeting Date: March 21, 2011

Topic:

- Stefan Bruns, Greetings from the City of Telgte, Germany

Background:

Origination:

Recommendation:

Funding:

Party(ies) responsible for placing this item on agenda:

ACTION TAKEN

APPROVAL	READINGS PASSED	OTHER
☐ YES ☐ NO	☐ 1ST ☐ 2ND	

Regular City Council
Agenda Item
Data Sheet

Meeting Date: March 21, 2011

Topic:

- March 24-27, 2011 – **11th Annual German Heritage Festival**
- March 31, 2011 – **Youth Opportunities Fair**, hosted by City of Tomball HR Department at the Community Center – 2:00-4:30 p.m.
- April 2, 2011 – **Farmers Market Opens** – 9 a.m.-1:00 p.m. (Every Saturday)
- April 9, 2011 – **3rd Annual City of Tomball Bunny Run 5K and Kids 1 Mile**
- April 18-23, 2011 – **City of Tomball Spring Clean Up Week** – 8:00 a.m. to 4:30 p.m
- ***Walk Tomball!*** (every Saturday at 9:00 a.m. at the Depot)
- Appointments to TEDC Board of Directors will be on April 18 agenda (for terms expiring 5/2/11)
- Reports by City staff and members of council about items of community interest on which no action will be taken
    - Shawn Cox – Report on the Oilfield Helping Hands Event
    - David Kauffman – Update regarding School Zone Flashing Beacon Project
    - Lori Lakatos – Status of Proposals for Designated Parking Lots

Background:

Origination:

Recommendation:

Funding:

Party(ies) responsible for placing this item on agenda:

ACTION TAKEN

APPROVAL	READINGS PASSED	OTHER
☐ YES ☐ NO	☐ 1ST ☐ 2ND	

ATTACHMENTS:

11th Annual German Heritage Festival
Youth Opportunities Fair
3rd Annual Bunny Run 5K and Kids 1 Mile
City of Tomball Spring Clean Up Week

2011 TOMBALL GERMAN HERITAGE FESTIVAL

Old Town Tomball Historical Train Depot

Free Admission!

Arts & Crafts

Bicycle Rally

Bluegrass Jam

Carnival Rides

Antique Shops

Fireworks

Food/Beer

5 Stages of Live Music!

Fun For The Entire Family!

Free Shuttle to the Event!

Shuttle will run continuously Sat. and Sun., from 1222 West Main, (formerly Kleins Grocery) to 401 West Main St., (Heritage Park)

MARCH 25TH-27TH

FRI., 6-10PM SAT., 10AM-10PM SUN., 10AM-6PM

WWW.TOMBALLGERMANFEST.ORG

City of Tomball's

Youth Opportunities Fair

Volunteer & Job Opportunities

Ages 15-19 Welcome

Tomball Community Center
221 Market St.
Thursday, March 31, 2011
2:00 pm - 4:30 pm

For more information, contact City Hall at 281-290-1012 or 281-290-1018.

5K Bunny Run

City of Tomball
Spring Clean up
Week of April 18, 2011 to April 23, 2011
Monday – Saturday - 8:00 am - 4:30 pm

Objective:
Provide the citizens of Tomball the opportunity to dispose of large, hard-to-handle items that cannot be collected under the normal garbage service. Remember this is for residents of Tomball only (must have **City utility bill** as proof); NO COMMERCIAL BUSINESS OPERATORS.
Roll Offs will be available at the City Landfill Site (0.4 miles north of E. Hufsmith on Rudolph) to dispose of the acceptable items. See map to landfill site below.

Acceptable Items:

- Lumber
- Bicycle parts
- Plywood (4 cubic yd. max)
- Rugs/carpet
- Siding
- Clothing
- Box springs and mattresses
- Bricks (small amount)
- Empty buckets or pails
- Rocks (small amount)
- Washing machines
- Dryers
- Water heaters
- Furniture
- Gutter material
- Cardboard boxes
- Lawn mowers (oil & gas removed)
- Dishwashers

Not Acceptable:

- Tree trimmings
- Limbs or stumps
- Tires
- Engine blocks
- Structural steel
- Equipment with oil or gasoline
- Fertilizers
- Pool chemicals
- Batteries
- Oil filters
- Insecticides
- Container with unmarked labels holding liquids
- Sealed containers of any type
- Large amounts of construction or demolition material
- Smoke detectors
- Pressurized vessels
- Flammable, combustible or corrosive products
- Raw meats, food products or byproducts
- Televisions
- Computers
- Refrigerators
- AC units
- Appliances with Freon or fluids

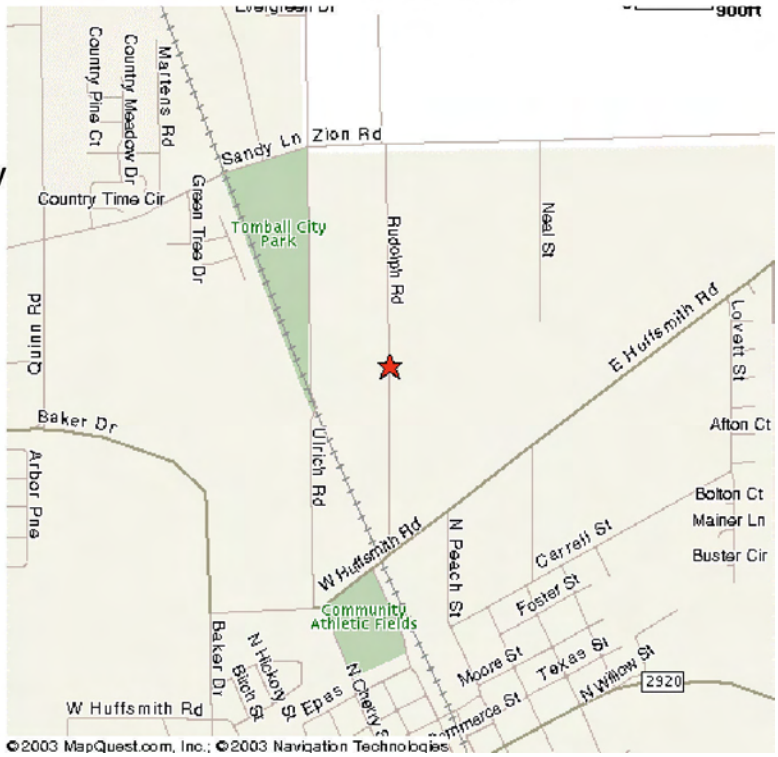
All appliances must be drained and tagged by a licensed technician.
Acceptable items are anything that is inert and would not harm the environment before or after disposal into a landfill.

The City of Tomball will provide a free chipping service for brush and small limbs during the week of Tomball Cleanup. To participate, please call **(281) 290-1400** the week before the cleanup begins to be added to the chipping list.

CHIPPING SPECIFICATIONS:

- **Turn all big ends toward road or in one direction**
- **Limit size to 6 ft.-8 ft., maximum**
- **Keep logs separate from limbs, nothing over 6" dia.**
- **Place limbs & brush near roadside and not on property**
- **Leaves, please bag for regular garbage pickup**

Map to Tomball landfill site →



Regular City Council
Agenda Item
Data Sheet

Meeting Date: March 21, 2011

Topic:

Approve the Minutes of the Following Meetings:

- March 7, 2011 Special City Council and Planning and Zoning Commission Meeting
- March 7, 2011 Regular City Council Meeting

Background:

Origination:

Recommendation:

Funding:

Party(ies) responsible for placing this item on agenda:

ACTION TAKEN

APPROVAL	READINGS PASSED	OTHER
☐ YES ☐ NO	☐ 1ST ☐ 2ND	

ATTACHMENTS:

Draft Minutes - Special Council and Planning and Commission Meeting, 3/21/11
Draft Minutes - Regular City Council Meeting, 3/21/11

MINUTES OF SPECIAL TOMBALL CITY COUNCIL AND PLANNING AND ZONING COMMISSION MEETING CITY OF TOMBALL, TEXAS

MONDAY, MARCH 7, 2011

4:30 P.M.

1.0 Call to Order

The Council meeting was called to order by Mayor Gretchen Fagan. Other members present were:

Councilman Quinn
Councilman Stoll
Councilman Brown
Councilman Townsend
Councilman Dodson

The Planning and Zoning Commission meeting was called to order by Chair Lori Wallace. Other members present were:

Vice Chair – Tom Crofoot
Commissioner – Field Hudgens
Commissioner – Barbara Tague

draft

Members absent:

Commissioner – John Mottershaw

Others present:

City Manager – George Shackelford
Assistant City Manager – Christal Kliewer
City Secretary – Doris Speer
City Attorney – Scott Bounds
Assistant to the City Manager – Shawn Cox
City Planner – Kelly Violette
Assistant City Engineer – Lori Lakatos
Assistant City Planner - Rodney Schmidt
Building Official – David Allen

Fire Marshal – Doug Sanguedolce
Fire Inspector – Tommy Nicholson
Administrative Assistant-E&P – Brandy Pate

2.0 No public comments were received.

3.0 Workshop Session:

3.1 The Tomball City Council and the Tomball Planning and Zoning Commission members entered into a Workshop session for the following purpose(s):

A. Discussion of Possible Changes to the Zoning Ordinance

Kelly Violette presented proposed changes to the Land Use charts. Consolidation of land use classifications are recommended to reduce the current 381 land use classifications to 293 land use classifications.

Mayor Fagan announced a short recess at 5:35 p.m.; upon returning at 5:40 p.m., the workshop continued.

City staff will prepare an ordinance incorporating the proposed changes to the zoning ordinance and necessary associated changes to the platting ordinance and property maintenance codes and will provide a summary of the changes for Council's review before consideration of the ordinance. The ordinance will be provided in a redlined version following review by the City Attorney.

B. Kelly Violette presented Project Expectations, Goals, and Existing Conditions regarding the Downtown Specific Plan and provided information regarding proposed meetings and timeline to complete the Downtown Specific Plan.

No action necessary.

4.0 Motion was made by Councilman Townsend, second by Councilman Stoll, to adjourn the City Council meeting.

Motion carried unanimously.

Motion was made by Commissioner Hudgens, second by Commissioner Crofoot, to adjourn the Planning and Zoning Commission meeting.

Motion carried unanimously.

Meetings adjourned.

PASSED AND APPROVED this 21st day of March 2011.

Doris Speer, TRMC
City Secretary

Gretchen Fagan
Mayor

MINUTES OF REGULAR CITY COUNCIL MEETING
CITY OF TOMBALL, TEXAS

MONDAY, MARCH 7, 2011

7:00 P.M.

1.0 Call to Order

The Council meeting was called to order by Mayor Gretchen Fagan**.** Other members present were:

Councilman Quinn
Councilman Stoll
Councilman Brown
Councilman Townsend
Councilman Dodson

Others present:

City Manager – George Shackelford
Assistant City Manager – Christal Kliewer
City Secretary – Doris Speer
City Attorney – Scott Bounds
Chief of Police – Robert Hauck
Director of Public Works – David Kauffman
Fire Chief – Randy Parr
Finance Director – Glenn Windsor
Assistant to City Manager – Shawn Cox
City Planner – Kelly Violette
Assistant City Engineer – Lori Lakatos

draft

2.0 The invocation was led by Pastor Ken Shuman, WellSpring Church

3.0 Pledges to the U. S. and Texas flags were led by Eric Ramsey, Tomball High School Student Council.

4.0 The following public comments were received:

Mary Harvey 405 S. Walnut, 77375	- Expressed her concern that City should adopt standards and procedural guidelines regarding

		German Heritage Festival, Oilfield Helping Hands, March of Dimes, Tomball Sports Association parade, and other special events and parades, requiring financial participation by organizations located outside Tomball.
Philip O'Sullivan 16014 Birchview, 77377	-	Requested a higher level of code enforcement in the area of town around MLK Park (the southeast portion of town); requested a traffic light at the intersection of Chestnut and FM 2920.
Ken Tidwell 19188 Timberland Blvd., 77365	-	Representing Panorama Development Group; requested Council consideration to award contract for Project 2011-02 to his company instead of JTR Constructors. Scout Bounds advised Council that Mr. Tidwell would be permitted to speak to Council during their deliberations regarding Item 9.10.

5.0 Presentations:

- Mayor Fagan presented a plaque and gift certificate to Betty Reinbeck, retiring Executive Director for the Tomball Economic Development Corporation.

6.0 Reports and Announcements:

- March 12, 2011 – **2nd Saturday at the Depot – Oilfield Helping Hands Car Show and Motorcycle Rally**
- April 2, 2011 – **Farmers Market** reopens
- March 14, 2011 – Last Day to Apply for Place on Ballot for May 14, 2011 General City Election
- March 21, 2011 – Possible Date for Candidate Orientation – 6 p.m.
- March 31, 2011 – **Youth Opportunities Fair**, hosted by City of Tomball HR Department – 2:00-4:30 p.m.
- April 9, 2011 – **3rd Annual City of Tomball Bunny Run 5K and Kids 1 Mile**
- April 18-23, 2011 – **City of Tomball Spring Clean Up Week** – 8:00 a.m. to 4:30 p.m.
- ***Walk Tomball!*** (every Saturday at 9:00 a.m. at the Depot)
- Appointments to TEDC Board of Directors will be on April 18 agenda (expire 5/2/11)
- Reports by City staff and members of council about items of community interest on which no action will be taken
    - Lori Lakatos provided an update on Water Wells 5 and 6, which have been accepted by the City of Tomball and are operational; the operation and maintenance duties will be handled by the City's Public Works Department. The wells have a one-year maintenance warranty, effective January 21, 2011 through January 20, 2012

7.0 Motion was made by Councilman Townsend, second by Councilman Stoll, to approve the minutes of the following meetings:

- February 21, 2011 Special City Council and Planning and Zoning Commission Meeting
- February 21, 2011 Regular City Council Meeting

Motion carried unanimously.

8.0 Old Business:

8.1 Glenn Windsor presented the Comprehensive Annual Financial Report (CAFR). Motion was made by Councilman Dodson, second by Councilman Brown, to accept the Comprehensive Annual Financial Report (CAFR) for the Fiscal Year ended September 30, 2010.

Motion carried unanimously.

8.2 Mayor Fagan presented information regarding the resignation of LaMar Barr and recommended appointment to the unexpired term, Position 8. Motion was made by Councilman Dodson, second by Councilman Brown, to accept the resignation of LaMar Barr and to appoint Prakash Patel to the unexpired term on the Tourism Advisory Committee (Hotel Industry Position 8).

Motion carried unanimously.

9.0 New Business:

9.1 Mayor Fagan presented recommendation to re-appoint H. G. "Hap" Harrington to the board of directors for Southeast Texas Housing Finance Corporation. Motion was made by Councilman Townsend, second by Councilman Stoll, to re-appoint H. G. "Hap" Harrington to the Southeast Texas Housing Finance Corporation Board of Directors (SETH).

Motion carried unanimously.

9.2 Shawn Cox presented the proposed request from the Tomball Sister City Organization. Motion was made by Councilman Brown, second by Councilman Dodson, to approve request by the Tomball Sister City Organization for Support and Street Closures for the 2011 German Heritage Festival.

Motion carried unanimously.

9.3 Shawn Cox presented the proposed grant application by Main Street Crossing for Hotel Occupancy Tax funding. Motion was made by Councilman Townsend, second by Councilman Brown, to approve the grant application by Main Street Crossing for Hotel Occupancy Tax Funds, in the amount of $23,479, as recommended by the Tourism

Advisory Committee, and to authorize City staff to negotiate a service agreement.

Motion carried unanimously.

9.4 Betty Reinbeck presented the proposed agreement with BL Technology, Inc. Motion was made by Councilman Dodson, second by Councilman Townsend, to approve, as a Project of the Corporation, an agreement with BL Technology, Inc. to make direct incentives to, or expenditures for, the creation or retention of primary jobs and that are found by the Board of Directors to be required or suitable for the development, retention, or expansion of manufacturing and industrial facilities: to wit: BL Technology, Inc.'s expansion and development of its manufacturing facility located at 1730 S. Cherry Street, Tomball, Texas. The estimated amount of expenditures for such Project is $51,000.

Motion carried unanimously.

9.5 Betty Reinbeck presented the proposed agreement with the City of Tomball. Motion was made by Councilman Townsend, second by Councilman Brown, to approve, as a Project of the Corporation, an agreement with the City of Tomball to expend funds as assistance with infrastructure necessary to promote or develop new or expanded business enterprises to include water, sewer, and gas utilities, right-of-way and utility easement acquisition: to wit: Brown Road Utility Extension, within the segment of Brown Road extending westerly of State Highway 249 easterly of Spring Creek Estates. The estimated amount of expenditures for such Project is $500,000.

Motion carried unanimously.

9.6 Betty Reinbeck presented the proposed agreement with Paloma Energy Consultants, L.P. Motion was made by Councilman Dodson, second by Councilman Brown, to approve, as a Project of the Corporation, an agreement with Paloma Energy Consultants LP to make direct incentives to, or expenditures for, the promotion of new or expanded business development: to wit: Paloma Energy Consultants LP relocation and development of its corporate headquarters to be located at 14405 Brown Road within the City of Tomball. The estimated amount of expenditures for such Project is $204,000.

Motion carried unanimously.

9.7 Betty Reinbeck presented the proposed Resolution authorizing expenditure of funds to Community Bank of Texas, N.A. Motion was made by Councilman Townsend, second by Councilman Brown, to approve, on First Reading, Resolution No. 2011-03-TEDC, a Resolution of the City Council of the City of Tomball, Texas, Authorizing and Approving the Tomball Economic Development Corporation's Project to Expend Funds in Accordance with an Economic Development Agreement by and between the Corporation and Community Bank of Texas N.A. to Promote and Develop a New or Expanded Business Enterprise; Containing other Provisions relating to the Subject; and Providing for Severability - Approving, as a Project of the Corporation, an Agreement with Community

Bank of Texas, N.A. to Make Direct Incentives to, or Expenditures for, Assistance with Infrastructure Costs related to the Development and Construction of a Commercial Building to be located at 28515 State Highway 249 in Tomball, Texas. The Estimated Amount of Expenditures for such Project is $60,000. Vote was as follows:

Councilman Quinn	Aye
Councilman Stoll	Nay
Councilman Brown	Aye
Councilman Townsend	Aye
Councilman Dodson	Aye

Motion carried, 4 votes Aye, 1 vote Nay.

Betty Reinbeck presented a summary of projects and investments made by the TEDC during her tenure as Executive Director.

9.8 Lori Lakatos presented the proposed utility extension project. Motion was made by Councilman Townsend, second by Councilman Brown, to approve the Utility Extension along Brown Road and to direct the Engineering and Planning Department to Negotiate and Prepare a Professional Services Contract.

Motion carried unanimously.

9.9 Kelly Violette presented proposed amendments to the current Administrative Policy. Motion was made by Councilman Dodson, second by Councilman Brown, to approve the proposed amendments to Administrative Policy Number 65, *"Right-of-Way Abandonment Policy,"* incorporating Fee and Application.

Motion carried unanimously.

9.10 David Kauffman presented the recommendation from Waterworks Engineers regarding awarding the proposed contract to the lowest responsible bidder. Motion was made by Councilman Townsend, second by Councilman Stoll, to award Contract for Project No. 2011-02, South Wastewater Treatment Plant Headworks Replacement, to Lowest Responsible Bidder, JTR Constructors, Inc., in the amount of $256,250.00, and to authorize the City Manager to Execute the Necessary Contract for Construction. Motion was made by Councilman Stoll, second by Councilman Townsend, to table consideration to award contract for Project No. 2011-02 to the March 21, 2011, to request a copy of the specifications, and to have the engineer from Waterworks Engineers present.

Motion to TABLE carried unanimously.

9.11 Motion was made by Councilman Townsend, second by Councilman Dodson, to read Ordinance 2011-01 by caption only.

Motion carried unanimously.

Doris Speer presented a review of the changes to the proposed Ordinance. Motion was made by Councilman Townsend, second by Councilman Dodson, to adopt, on First Reading, Ordinance No. 2011-01, an Ordinance amending Chapter 54, Peddlers and Solicitors, of the Code of Ordinances of the City of Tomball, Texas, by Deleting Subsection (4) of Section 54-2 and Substituting a New Subsection (4) and Adding a New Subsection (5), Providing Exceptions to the Regulations Established in Chapter 54; by Deleting Section 54-3 and Substituting a New Section 54-3, Providing Regulations and Criminal Violations related to any Peddler who Refuses to Leave a Premises upon Notification to Leave or not to enter such Premises; by Deleting Section 54-6 and Substituting a New Section 54-6, Providing for Hours and Time Limit of Operation; by Deleting Section 54-8 and Substituting a New Section 54-8, Prohibiting Misrepresentations by Peddlers; by Adding a New Section 54-9, Providing Regulations related to the Responsibility of Owners, Tenants and Lessees who allow Peddlers to Utilize their Property; by Adding a New Section 54-10, Providing for Compliance with the Home Solicitation Sales Act; by Adding a New Section 54-11, Providing for Regulations related to Structures Erected or Maintained by Peddlers; by Deleting Subsection (12) of Section 54-31 and Substituting a New Subsection (12) and Adding a New Subsection (13), Providing Information Required to Obtain a Permit; by Deleting Section 54-37 and Substituting a New Section 54-37, Providing Application and Permit Fees; by Deleting Section 54-39 and Substituting a New Section 54-39, Providing Regulations related to the Approval, Denial, Issuance and Appeal of a Permit; by Deleting Section 54-40 and Substituting a New Section 54-40, Providing Certain Limitations, Prohibiting the Assignability of Permits, and Restricting the Number of Permits Allowable for Peddlers Representing the Same Business Entity; by Deleting Section 54-41 and Substituting a New Section 54-41, Providing for the Required Contents of a Permit; by Deleting Section 54-43 and Substituting a New Section 54-43, Providing for the Duration and Renewal of a Permit; Providing a Penalty in an amount of not more than $500 for Violation of any Provision Hereof; Providing for Savings and Severability; Providing for Publication; and Making Other Provisions and Findings related Thereto, and to request that Scott Bounds provide information regarding research into limiting the total number of vendors representing a single organization prior to the second reading of Ordinance No. 2011-01. Vote was as follows:

Councilman Quinn	Aye
Councilman Stoll	Aye
Councilman Brown	Aye
Councilman Townsend	Aye
Councilman Dodson	Aye

Motion carried unanimously.

9.12 Randy Parr presented information regarding the condition of TFD Engine 4 and the associated stresses being placed on remaining fire equipment. Motion was made by

Councilman Townsend, second by Councilman Dodson, to authorize City Staff to pursue tax-exempt funding and to solicit proposal for purchase, lease, or lease/purchase of equipment to replace TFD Engine 4, the Frontline Pumper at Station 1, due to significant mechanical and safety issues.

Motion carried unanimously.

10.0 Motion was made by Councilman Townsend, second by Councilman Dodson, to adjourn.

Motion carried unanimously.

Meeting adjourned.

PASSED AND APPROVED this 21st day of March 2011.

Doris Speer, TRMC	Gretchen Fagan
City Secretary	Mayor

Regular City Council
Agenda Item
Data Sheet

Meeting Date: March 21, 2011

Topic:

Approve, on Second Reading, Resolution No. 2011-03-TEDC, a Resolution of the City Council of the City of Tomball, Texas, Authorizing and Approving the Tomball Economic Development Corporation's Project to Expend Funds in Accordance with an Economic Development Agreement by and between the Corporation and Community Bank of Texas N.A. to Promote and Develop a New or Expanded Business Enterprise; Containing other Provisions relating to the Subject; and Providing for Severability - Approving, as a Project of the Corporation, an Agreement with Community Bank of Texas, N.A. to Make Direct Incentives to, or Expenditures for, Assistance with Infrastructure Costs related to the Development and Construction of a Commercial Building to be located at 28515 State Highway 249 in Tomball, Texas. The Estimated Amount of Expenditures for such Project is $60,000

Background:

All expenditures of the Tomball Economic Development Corporation (TEDC) sales tax revenue must first be approved as a "Project of the Corporation." At its regular meeting on February 22, 2011, the TEDC Board of Directors did take formal action to approve, as a Project of the TEDC, an agreement, with Community Bank of Texas , N.A. for the construction of a commercial building to be located at 28515 State Highway 249. The City Council of Tomball has final approval authority over all projects and agreements of the TEDC.

Origination:

Tomball Economic Development Corporation Board of Directors

Recommendation:

Approve Resolution No. 2011-03-TEDC on Second Reading

Funding: Yes

Account Number: Grant Funds Available

Party(ies) responsible for placing this item on agenda:

Betty Reinbeck

ACTION TAKEN

APPROVAL	READINGS PASSED	OTHER
☐ YES ☐ NO	☐ 1ST ☐ 2ND	

ATTACHMENTS:

Resolution No. 2010-03-TEDC
Cover Memo
Request Letter
Performance Agreement
Economic Impact Model

RESOLUTION NO. 2011-03-TEDC

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF TOMBALL, TEXAS, AUTHORIZING AND APPROVING THE TOMBALL ECONOMIC DEVELOPMENT CORPORATION'S PROJECT TO EXPEND FUNDS IN ACCORDANCE WITH AN ECONOMIC DEVELOPMENT AGREEMENT BY AND BETWEEN THE CORPORATION AND COMMUNITY BANK OF TEXAS N.A. TO PROMOTE AND DEVELOP A NEW OR EXPANDED BUSINESS ENTERPRISE; CONTAINING OTHER PROVISIONS RELATING TO THE SUBJECT; AND PROVIDING FOR SEVERABILITY.

* * * * *

WHEREAS, the Tomball Economic Development Corporation (the "TEDC"), created pursuant to the Development Corporation Act, now Chapter 501 of the Texas Local Government Code, as amended (the "Act"), desires to adopt projects and provide incentives for economic development within the City; and

WHEREAS, the Board of Directors of the TEDC had adopted as a specific project the expenditure of the estimated amount of Sixty Thousand Dollars ($60,000) found by the Board to be required or suitable to promote a new business development by Community Bank of Texas, N.A.; and

WHEREAS, pursuant to the Act, the TEDC may not undertake such project without the approval of Tomball City Council; and

WHEREAS, City Council finds and determines that such project promotes new or expanded business development and is in the best interests of the citizenry; now, therefore,

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF TOMBALL, TEXAS:

Section 1. The facts and matters set forth in the preamble of this Resolution are hereby found to be true and correct.

Section 2. The City Council hereby authorizes and approves the adoption, by the Board of Directors of the Tomball Economic Development Corporation, as a specific project for the economic development of the City, an expenditure of the estimated amount of Sixty Thousand Dollars ($60,000) to Community Bank of Texas, N.A., in accordance with an economic development agreement by and between the TEDC and Community Bank of Texas, N.A., to promote and develop a new or expanded business enterprise, to be located at 28515 State Highway 249 in Tomball, Texas.

Section 3. In the event any clause, phrase, provision, sentence, or part of this Resolution or the application of the same to any person or circumstance shall for any reason be

adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Resolution as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Tomball, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, whether there be one or more parts.

PASSED AND APPROVED on first reading this 7th day of March, 2011.

PASSED, APPROVED, AND RESOLVED on second and final reading this _____ day of _____, 2011.

_____
Gretchen Fagan, Mayor

ATTEST:

_____
Doris Speer, City Secretary

TOMBALL
ECONOMIC DEVELOPMENT CORPORATION

TO: Board of Directors
Tomball Economic Development Corporation

FROM: Betty Reinbeck
Executive Director

MEETING DATE: February 22, 2011

SUBJECT: Community Bank of Texas

As per the grant funding assistance request dated February 1, 2011, Community Bank of Texas, N.A., which is headquartered in Beaumont, Texas, is planning to establish a new branch banking facility at 28515 State Highway 249 in the City of Tomball. The proposed site is located in the Tomball Marketplace Shopping Center at FM 2920 and the frontage road on SH 249, Tomball Parkway.

The project involves new construction of a 4,336 square foot commercial building on the site with an estimated value of $1,539,120.00.

Community Bank of Texas, N.A. is requesting grant funding assistance with infrastructure costs that are necessary to complete this project. Details as to the infrastructure improvements are shown in Exhibit C of the proposed agreement between the Tomball Economic Development Corporation and Commercial Bank of Texas, N.A.

Although this project does not create primary jobs, it does promote the development and expansion of business enterprise, which is considered a permissible project as outlined in Texas Economic Development Legislation. If this project is approved, it will go to the Tomball City Council for final approval by resolution at two separate readings.

An economic impact model form is included with the agreement to show the five (5) year impact of this firm on Tomball's economy.

If the agreement between the TEDC and Community Bank of Texas is approved as a Project of the Corporation, the grant funding amount will not exceed $60,000, based on actual expenditures for the approved Infrastructure Improvements.

CommunityBank
OF TEXAS

Charles Cox
Executive Vice President

February 10, 2011

Ms. Betty Reinbeck
Executive Director
Tomball Economic Development Corporation
P O Box 820
Tomball, TX 77377-0820

Dear Ms. Reinbeck:

It is a pleasure to write you to seek assistance for the establishment of a new branch banking facility to be located at 28515 State Highway 249, Tomball, TX 77375. CommunityBank of Texas, N.A. (a national banking association) is headquartered in Beaumont, TX and the Chief Executive Officer is J. Pat Parsons. This new branch banking facility will be a full service bank with loan personnel, tellers, ATM and night depository. We currently operate 27 full service branch banks across Southeast Texas and the Houston metro area. The following data represents the description of the improvements:

- Size of Property – Approximately 51,932 square feet more or less;
- Value of Property – Contract pending for $986,708.00;
- Building Size – Proposed 4,336 square feet;
- New Construction – Proposed $1,539,120.00 (Excludes Furniture, Window and Wall Coverings);
- Project Start Date is scheduled for March 14, 2011;
- Project Completion is scheduled for July 20, 2011;
- Initial staffing will be 7 full time to increase to 9 full time and 1 part time;
- Average wage for all jobs at new location - $50,000.00/year + benefits.

Enclosed herewith please find the completed application with supporting information including a copy of our contract and construction bid. I have included some photos of one of our branches in Beaumont which we intend to duplicate in Tomball. Please do not hesitate to call or e-mail for additional information.

Thanking you in advance, I am sincerely;

Charles Cox

AGREEMENT

THE STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF HARRIS §

This Agreement (the "Agreement") is made and entered into by and between the **Tomball Economic Development Corporation**, an industrial development corporation created pursuant to Tex. Rev. Civ. Stat. Ann. Art. 5190.6, Section 4B, now Chapter 505 of the Texas Local Government Code, located in Harris County, Texas (the "TEDC"), and **Community Bank of Texas** (the "Company"), 5999 Delaware, Beaumont, TX 77706.

W I T N E S S E T H :

WHEREAS, it is the established policy of the TEDC to adopt such reasonable measures from time-to-time as are permitted by law to endeavor to attract industry, create and retain primary jobs, expand the growth of the City of Tomball (the "City"), and thereby enhance the economic stability and growth of the City; and

WHEREAS, the Company proposes to develop approximately 51,932 square feet of land within the City, located at 28515 State Highway 249, Tomball, Texas 77375 (the "Property"), more particularly described in Exhibit "A," attached hereto and made a part hereof; and

WHEREAS, such development shall include the construction of a 4,336 square foot branch banking facility (the "Improvements") on the site, and more particularly described in Exhibit "B," attached hereto and made a part hereof; and

WHEREAS, the TEDC agrees to provide to the Company the sum of Sixty Thousand Dollars ($60,000.00), or an amount equal to actual construction costs if less than the sum stated above, to assist in the construction of infrastructure necessary to promote and develop a new

business enterprise on the Property. The infrastructure found by the Board of Directors of TEDC to be required to develop the Property are site improvements and site utilities to the exterior of the building (the "Infrastructure Improvements"), identified and described in Exhibit "C," attached hereto and made a part hereof; and

WHEREAS, the Company has agreed, in exchange and as consideration for the funding, to satisfy and comply with certain terms and conditions; and

NOW, THEREFORE, in consideration of the premises and the mutual benefits and obligations set forth herein, including the recitals set forth above, the TEDC and the Company agree as follows:

1.

The Company covenants and agrees that it will construct and maintain on the Property a 4,336 square-foot branch banking facility (the "Improvements") identified and described in Exhibit "B," attached hereto and made a part hereof. In conjunction with the development of the Property, the Company further agrees to construct the Improvements contemplated by this Agreement, in accordance with the requirements of the ordinances of the City and the plans and specifications approved by the City. The Company further represents and agrees that it will certify the costs of the construction of such Infrastructure Improvements to the TEDC prior to construction.

2.

Construction of the Improvements on the Property, including construction of the Infrastructure Improvements, must commence within 180 days from the Effective Date of this Agreement (the "Date"). The construction of the Improvements to the Property, including construction of the Infrastructure Improvements, shall be completed, and all necessary

occupancy permits from the City shall be obtained within eighteen (18) months from the Date of this agreement. Extensions of these deadlines due to extenuating circumstances or uncontrollable delay may be granted by the Board of Directors of the TEDC at its sole discretion.

3.

The Company further covenants and agrees that the Improvements described in Paragraph 1 hereof will be occupied and that the branch banking facility will be maintained on the Property for a term of at least five (5) years.

4.

The Company further covenants and agrees that the Company or any owner or lessee of the Improvements does not and will not knowingly employ an undocumented worker. An "undocumented worker" shall mean an individual who, at the time of employment, is not (a) lawfully admitted for permanent residence to the United States; or (b) authorized under the law to be employed in that manner in the United States.

5.

In consideration of the Company's representations, promises, and covenants, TEDC agrees to reimburse the Company for the actual cost of the Infrastructure Improvements up to the amount of Sixty Thousand Dollars ($60,000), or an amount equal to actual construction costs if less than the sum stated above. The TEDC agrees to reimburse the Company for such amount within thirty (30) days of receipt of a letter from the Company requesting such payment and including: (a) certification of the actual costs of constructing the Infrastructure Improvements; (b) a copy of the City's occupancy permit for the Improvements to the Property; (c) verification from the City acknowledging that all necessary plats, permits, plans, and specifications have been received, reviewed, and approved; (d) verification that the Infrastructure Improvements have been

constructed in accordance with the approved plans and specifications; and, (e) an affidavit stating that all contractors and subcontractors providing work and/or materials in the construction of the Infrastructure Improvements have been paid and any and all liens and claims regarding such work have been released.

6.

It is understood and agreed by the parties that, in the event of a default by the Company on any of its obligations under this Agreement, the Company shall reimburse the TEDC the full amount paid to the Company by the TEDC, with interest at the rate equal to the 90-day Treasury Bill plus one-half percent (½%) per annum, within thirty (30) days after the TEDC notifies the Company of the default. It is further understood and agreed by the parties that if the Company, or any owner or lessee of the Improvements, is convicted of a violation under 8 U.S.C. Section 1324a(f), the Company will reimburse the TEDC the full amount paid to the Company, with interest at the rate equal to the 90-day Treasury Bill plus one-half percent (½%) per annum, within thirty (30) days after the TEDC notifies the Company of the violation.

The Company shall also reimburse the TEDC for any and all reasonable attorney's fees and costs incurred by the TEDC as a result of any action required to obtain reimbursement of such funds. Such reimbursement shall be due and payable thirty (30) days after the Company receives written notice of default.

7.

This Agreement shall inure to the benefit of and be binding upon the TEDC and the Company, and upon the Company's successors and assigns, lessees, affiliates, and subsidiaries, and shall remain in force whether the Company sells, leases, assigns, or in any other manner disposes of, either voluntarily or by operation of law, all or any part of the Property and the

agreements herein contained shall be held to be covenants running with the Property for so long as this Agreement, or any extension thereof, remains in effect.

8.

Any notice provided or permitted to be given under this Agreement must be in writing and may be served by (i) depositing the same in the United States mail, addressed to the party to be notified, postage prepaid, registered or certified mail, return receipt requested; or (ii) by delivering the same in person to such party; or (iii) by overnight or messenger delivery service that retains regular records of delivery and receipt; or (iv) by facsimile; provided a copy of such notice is sent within one (1) day thereafter by another method provided above. The initial addresses of the parties for the purpose of notice under this Agreement shall be as follows:

If to City:	Tomball Economic Development Corporation 401 W. Market Street Tomball, Texas 77375 Attn: President, Board of Directors
If to Company:	Community Bank of Texas 5999 Delaware Beaumont, Texas 77706 Attn: J. Pat Parsons, Chief Executive Officer

9.

This Agreement shall be performable and enforceable in Harris County, Texas, and shall be construed in accordance with the laws of the State of Texas.

10.

Except as otherwise provided in this Agreement, this Agreement shall be subject to change, amendment or modification only in writing, and by the signatures and mutual consent of the parties hereto.

11.

The failure of any party to insist in any one or more instances on the performance of any of the terms, covenants or conditions of this Agreement, or to exercise any of its rights, shall not be construed as a waiver or relinquishment of such term, covenant, or condition, or right with respect to further performance.

12.

This Agreement shall bind and benefit the respective Parties and their legal successors and shall not be assignable, in whole or in part, by any party without first obtaining written consent of the other party.

13.

In the event any one or more words, phrases, clauses, sentences, paragraphs, sections, or other parts of this Agreement, or the application thereof to any person, firm, corporation, or circumstance, shall be held by any court of competent jurisdiction to be invalid or unconstitutional for any reason, then the application, invalidity or unconstitutionality of such words, phrases, clauses, sentences, paragraphs, sections, or other parts of this Agreement shall be deemed to be independent of and severable from the remainder of this Agreement, and the validity of the remaining parts of this Agreement shall not be affected thereby.

IN TESTIMONY OF WHICH, THIS AGREEMENT has been executed by the parties on this _____ day of _____ 2011 (the "Effective Date").

COMMUNITY BANK OF TEXAS

By: _____
Name: J. Pat Parsons
Title: CEO

ATTEST:

By: _____
Name: _____
Title: _____

TOMBALL ECONOMIC DEVELOPMENT CORPORATION

By: _____
Name: Gretchen Fagan
Title: President, Board of Directors

ATTEST:

By: _____
Name: James D. Geer
Title: Secretary, Board of Directors

ACKNOWLEDGMENT

THE STATE OF TEXAS §
§
COUNTY OF HARRIS §

This instrument was acknowledged before me on the _____ day of _____ 2011, by J. Pat Parsons, the Chief Executive Officer of Community Bank of Texas, for and on behalf of said company.

_____
Notary Public in and for the State of Texas

My Commission Expires: _____

(SEAL)

ACKNOWLEDGMENT

THE STATE OF TEXAS §
§
COUNTY OF HARRIS §

This instrument was acknowledged before me on the _____ day of _____ 2011, by _____, President of the Board of Directors of the Tomball Economic Development Corporation, for and on behalf of said Corporation.

_____
Notary Public in and for the State of Texas

My Commission Expires: _____

(SEAL)

Exhibit "A"

Legal Description of Property

LOT 5 OF TOMBALL MARKETPLACE A SUBDIVISION OUT OF THE JOHN M. HOOPER SURVEY, ABSTRACT 375 FILED OCTOBER 17, 2006 AT FILM CODE 60515, H.C.M.R., ALSO BEING A REPLAT OF RESERVE "C" AND RESERVE "D" PARR CENTER REPLAT FINAL, FILM CODE 5893192, H.C.M.R. AND A REPLAT OF LOT 1 AND RESERVE "A" PARR COURT, SECTION 2, COMMERCIAL SUBDIVISION FILM CODE 586241, H.C.M.R., TOMBALL, HARRIS COUNTY, TEXAS.

Exhibit "B"

Description of Improvements

Construction of a 4,336 square foot branch banking facility to be located at 28515 State Highway 249, Tomball, Texas on the site

A detailed description of the Improvements is on file at the Tomball Economic Development Corporation office located at 29201 Quinn Road, Suite B, Tomball, Texas 77375.

Exhibit "C"

Description of Infrastructure Improvements

Site work

- Earthwork (shaping the site dirt for parking areas, building pad, etc.
- Erosion control

Site utilities

- Site water line to within 5' of the building
- Site sanitary sewer line to within 5' of the building line
- Underground storm sewer piping and inlets
- Electrical power service to the building and associated electrical for flag pole lights and site parking lot light poles
- Communications conduits to the building
- Sleeve for gas line

Note: No costs for tap fees or impact fees or fees by the power company have been included in the costs estimates that have been submitted.

COMMUNITY BANK OF TEXAS

TOMBALL ECONOMIC DEVELOPMENT CORPORATION

CITY OF TOMBALL ECONOMIC IMPACT MODEL

Average Annual Wage Assessment:

Number of Employees		Average Hourly Wage	Average Weekly Wages	Total Annual Wages (52 wks.per Yr.)
Existing:	0			
Prospective:	9	24.00		
TOTAL:	9	24.00	8,640	449,280
Federal Income and FICA Taxes at 28% deducted				125,798
Fixed payments for rent, insurance, etc. at 25%				112,320
Net Disposable Annual Income				211,162

Total Return to Local Government by Annual Payroll:

Local Sales Tax Rate of 2% on Fixed Payments:	2,246
Average Multiplier effect of the Dollar turning over 3.5 times to Calculate the Total Annual Local Sales Tax Impact:	7,862

Annual Sales Tax Impact:

Value of Retail Sales	Sales Tax	
0	2.00%	0

Estimated Property Tax Impact:

Value of Property and Improvements	Tomball Tax Rate (per $100)	
2,525,828	0.25146	6,351
Annual Economic Impact of Construction of Banking Facility		14,214
Economic Impact over a Five Year Period		71,069

Regular City Council
Agenda Item
Data Sheet

Meeting Date: March 21, 2011

Topic:

Award Contract for Project No. 2011-02, South Wastewater Treatment Plant Headworks Replacement, to Lowest Responsive Bidder, JTR Constructors, Inc., in the amount of $256,250.00, and Authorize the City Manager to Execute the Necessary Contract for Construction.

Background:

This item was initially considered and tabled by City Council at the March 7, 2011 Regular City Council Meeting as the project engineer, Rob Bryant, P.E. was unable to attend and answer questions pertaining to his recommendation to award.

Mr. Bryant will be in attendance at the March 21, 2011 Council Meeting, to provide a summary and to answer questions.

Attachments for this item include electronic pdf copies of:

- The Official Notice to Bidders for Project #2011-02
- Document 00910 - Addendum No. 1
- Section 00200 - Instructions to Bidders
- Director of Public Works Memo regarding receipt and administration of project documents
- Summary of Award Process as presented by Rob Bryant, P.E., with Water Works Engineers, LLC
- Project 2011-02 Bid Tabulation
- Copy of project bid as submitted by Desert Eagle, LLC (dba Panorama)
- Copy of project bid as submitted by JTR Constructors, Inc.
- Late submittal (references) as submitted by Panorama
- Secretary of State of Texas Document #: 33131043005 - Assumed Name Certificate for Panorama
- Secretary of State of Texas Document #: 304434020003 - Certificate of Formation for Desert Eagle, LLC
- Project Manual Volume 1 (specifications) for SWWTP Headworks Replacement Project #2011-02
- Project Manual Volume 2 (plan drawings) for SWWTP Headworks Replacement Project #2011-02

NOTE: While all of the above materials related to the project are provided in electronic form for Council's review, specific materials related to questions and concerns expressed by Council during the March 7

Council meeting, which are included in the electronic attachments listed above, are also being provided in a bound and tabbed hard copy report to facilitate review and discussion during the March 21 Council meeting. This report will be made available to Mayor and Council, City Manager, City Attorney, City Secretary, and Mr. Tidwell at the beginning of the March 21 Council meeting.

Origination:

Public Works

Recommendation:

Staff recommends approval for Award Contract for Project #2011-02, South Wastewater Treatment Plant Headworks Replacement, to Lowest Responsive Bidder, JTR Constructors, Inc., in the amount of $256,250.00, and Authorize the City Manger to the Execute the Necessary Contract for Construction.

Funding: Yes

Account Number: 600-614-6207

Party(ies) responsible for placing this item on agenda:

Director of Public Works

ACTION TAKEN

APPROVAL	READINGS PASSED	OTHER
☐ YES ☐ NO	☐ 1ST ☐ 2ND	

ATTACHMENTS:

Project 2011-02 - Official Notice to Bidders
Project 2011-02 Addendum #1
Project 2011-02 Instructions to Bidders
DPW Memo Regarding Proj Doc Admin
Engineer's Summary
Project 2011-02 Bid Tabulation
Project Bid as Submitted by Desert Eagle/Panorama
Project Bid as Submitted by JTR
Late Submittal as Submitted by Panorama
SOS Doc 3313
SOS Doc 3044
Project Manual Vol 1 Specs
Project Manual Vol 2 Plans

City of Tomball

Gretchen Fagan
Mayor

George Shackelford
City Manager

NOTICE TO BIDDERS
PROJECT NUMBER 2011-02

The City of Tomball, Texas shall accept sealed bids for "**South Wastewater Treatment Plant – Headworks Replacement.**"

Sealed bids shall be addressed to the City Purchasing Agent, City of Tomball, 501 James Street, Tomball, Texas 77375, and shall be labeled **"Project Number 2011-02, DO NOT OPEN"**. Bids shall be submitted no later than **9:00 a.m., Local Time on Tuesday, February 8, 2011** at which time all bids shall be opened and read aloud.

A pre-bid conference will be held on Tuesday, February 1, 2011, at 10:00 a.m. at the City of Tomball, Public Works Building, 501 James Street, Tomball, Texas 77375, to familiarize the Bidders with the goals for this project. The pre-bid conference is not mandatory.

DRAWINGS and SPECIFICATIONS are on file at the following locations and may be examined without charge:

- Dodge Reports - 4101 Greenbriar Suite 320, Houston, Texas 77098
- Associated General Contractors – 2400 Augusta Street Suite 180, Houston, Texas 77057

DRAWINGS and SPECIFICATIONS may be purchased for a non-refundable fee of $30.00 from:

A&E The Graphics Complex
361 Greens Road
Houston, TX 77060
281-875-2500

Cashier's Check, Certified Check, or Bid Bond in an amount equal to five percent (5%) of the total amount bid must accompany the BID. The Owner reserves the right to reject any or all bids or to accept any bid deemed advantageous to it and waive informalities in bidding. All bids received after the closing time designated will be returned unopened.

Upon consideration of the bids, the City of Tomball reserves the right to accept or to reject any and all bids, to waive technicalities and to make any investigation deemed necessary concerning the bidder's ability to provide the services as covered by the specifications, and to accept what in their judgment is the most advantageous bid.

George Shackelford, City Manager

CERTIFICATION

I certify that the above "Notice to Bidders" was posted on the bulletin board of City Hall, City of Tomball, Texas on the 20th day of January 2011.

Doris Speer, City Secretary

Document 00910

ADDENDUM NO. 1

Date of Addendum: February 7, 2011

PROJECT NAME: South Wastewater Treatment Plant Headworks Replacement

PROJECT NO: 2011-02

ORIGINAL BID DATE: February 8, 2011

FROM: City of Tomball, Public Works Department
501 James St
Tomball, TX 77375
Attn: Steve Purvis, Project Manager

TO: Prospective Bidders

This Addendum form is a part of the Bidding Documents and will be incorporated into the Contract documents, as applicable. Insofar as the original Project Manual and Drawings are inconsistent, this Addendum governs.

CHANGE IN BID DATE

The Bid Date for this Project has been changed from **02/08/2011** (Date) to **02/22/2011** (Date).
Time of day and place for submittal of bid remains the same.

END OF ADDENDUM NO. 1

DATED: February 7, 2011

END OF DOCUMENT

Section 00200

INSTRUCTIONS TO BIDDERS

1. DEFINITIONS

A. Terms used in these Instructions to Bidders which are defined in the Standard General Conditions of the Construction Contract (General Conditions) have the meanings assigned to them in the General Conditions. Other terms used in the Bidding Documents and not defined elsewhere have the following meanings, which are applicable to both the singular and plural thereof:

1. Bidder: One who submits a bid directly to the Owner.

2. Successful Bidder: The most qualified, responsible and responsive bidder to whom the Owner makes an award.

3. Bidding Documents: The Notice to Bidders, Instructions to Bidders, Supplementary Conditions to General Conditions, Special Conditions (Underground Utilities), Special Conditions to the Agreement, Proposal and the Proposed Contract Documents (including Addenda issued prior to receipt of Bids).

2. PREPARATION OF BIDS

A. Complete sets of bidding documents must be used in preparing bids. Neither the Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of bidding documents. Copies of bidding documents are made available only for the purpose of obtaining bids on the work and do not confer a license or grant for any other use.

3. QUALIFICATIONS OF BIDDERS

A. Each bidder must submit with the bid a Financial and Experience Statement. The statement shall be filed with the proposal in a separate sealed envelope marked "Financial and Experience Statement".

B. Financial statements from the three most qualified bidders will be retained by the Owner until award of the contract. NO FINANCIAL STATEMENT WILL BE READ ALOUD AT THE BID OPENING. Upon award of the contract, the statements of all unsuccessful bidders will be returned.

C. Additional written evidence of qualifications, such as financial data, previous experience, present commitments, and other such data as may be called for by the OWNER.

4. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

A. It is the responsibility of each Bidder before submitting a Bid to (a) examine the Contract Documents thoroughly, (b) visit the site to become familiar with local conditions that may

affect cost, progress, performance, or furnishing of the Work, (c) consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work, (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify ENGINEER of all conflicts, errors, or discrepancies in the Contract Documents discovered by the Bidder.

B. Information and data reflected in the Contract Documents with respect to Underground Facilities at or contiguous to the site is based upon information and data furnished to OWNER and ENGINEER by owners of such Underground Facilities or others, and OWNER does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.

C. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, underground facilities, and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions.

D. Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests, and studies, and obtain any additional information and data which pertain to the physical conditions (surface, subsurface, and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the Work, and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents.

E. On request in advance, OWNER will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall clean up and restore the site to its former condition upon completion of such explorations.

F. Failure to perform such investigations during the Bid period shall not relieve Bidder from responsibility for investigations, interpretations and proper use of available information in preparation of Bidder's proposal.

G. The lands upon which the Work is to be performed, rights-of-way, and easements for access thereto and other lands designated for use by CONTRACTOR in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by CONTRACTOR. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by OWNER unless otherwise provided in the Contract Documents.

H. The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and such means, methods, techniques, sequences, or procedures of

construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

6. INTERPRETATION OF DOCUMENTS AND ADDENDA

A. All questions about the meaning or intent of the Contract Documents must be submitted to the Engineer in writing at least ten (10) days prior to the opening of bids. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda at least 48 hours prior to Bid Opening.

B. Any interpretation of the Contract Documents will be made only by Addendum duly issued, and a copy of such addendum will be made available to each prospective bidder recorded by ENGINEER as having received a set of Contract Documents. Each Bidder is responsible for obtaining Addenda. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

C. Addenda may also be issued to modify the Contract Documents as deemed advisable by ONWER and ENGINEER.

7. BID SECURITY

A. Each Bid shall be accompanied by Bid security made payable to OWNER in an amount of five percent of the Bidder's maximum Bid price and in the form of a bid bond, cashier's check, or certified check. Bid Bond shall have a "B+" rating from Best's Key Rating Guide, and shall be duly authorized by the State of Texas to execute Bid Security.

B. The Bid security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required contract security, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required contract security with 15 calendar days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of the seventh day after the Effective Date of the Agreement or the forty-sixth day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid security with Bids which are not competitive will be returned within 7 days after the Bid opening.

8. CONTRACT TIME

A. The number of days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment (the Contract Time) are set forth in the Agreement.

9. LIQUIDATED DAMAGES

A. Provisions for liquidated damages, if any, are set forth in the Agreement.

10. SUBSTITUTE OR "OR EQUAL" ITEMS

A. The Contract, if awarded, will be on the basis of materials and equipment described in the DRAWINGS or specified in the Specifications without consideration of possible substitute or "or equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in Paragraph 6.05 of the General Conditions and may be supplemented in the General Requirements (Division 1).

11. SUBCONTRACTORS, SUPPLIERS AND OTHERS

A. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, and other person and organizations (including those who are to furnish the principal items of material and equipment) to be submitted to OWNER in advance of the specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within 7 days after the Bid opening, submit to OWNER a list of all such Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, person, or organization, either may, before the Notice of Award is given, request the apparent Successful Bidder to submit an acceptable substitute without an increase in Bid price.

B. If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, and other persons and organizations. The declining to make requested substitutions will not constitute grounds for sacrificing the Bid security of any Bidder. Any Subcontractor, Supplier, other person, or organization listed and to whom OWNER or ENGINEER does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06.B of the General Conditions.

C. In Contracts where the Contract Price is on the basis of Cost of Work Plus a Fee, the apparent Successful Bidder, prior to the Notice of Award, shall identify in writing to OWNER those portions of the Work that such Bidder proposes to subcontract and after the Notice of Award may only subcontract other portions of the Work with OWNER'S written consent.

D. No CONTRACTOR shall be required to employ any Subcontractor, Supplier, other person, or organization against whom CONTRACTOR has a reasonable objection.

12. BID FORMS

A. All Bids shall be completely filled out on the specified bid forms without modification or provisions unless otherwise required.

B. The Bids shall be completed in duplicate. The original shall be filed with the OWNER and the Bidder shall keep the duplicate.

C. The Bids must be clearly and legibly filled out in ink or typed. In case of ambiguity or lack of clearness in stating the prices tendered or the condition of the Bid, the OWNER reserves the right to consider the most favorable construction thereof or to reject the Bid from further consideration.

D. All Bids must be officially executed. Bids by Corporations must be executed in the corporate name by the president or vice president (or other corporate officer, accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or assistant secretary. The corporate address and state of incorporation must be shown below the signature. Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature, and the official address of the partnership must be shown below the signature. All business entity names must be registered with the Secretary of State of Texas and appropriate office of registration.

E. The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).

13. SUBMISSION OF BIDS

A. Bids shall be submitted at the time and place indicated in the Notice to Bidders, and shall be enclosed in an opaque sealed envelope marked with the Project title, name and address of the Bidder and containing Bid security and other required documents. Bids will be securely kept unopened, until the specified time. The bids received after the specified time will not be considered. All incomplete Bids shall be considered non-responsive. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it.

14. MODIFICATION AND WITHDRAWAL OF BIDS

A. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to opening of Bids.

B. If, within 24 hours after Bids are opened, any Bidder files a duly signed, written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of

OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work to be provided under the Contract Documents.

15. OPENING OF BIDS

A. Bids will be opened and read aloud publicly. An abstract of the amounts of the base Bids and major alternates (if any) will be made available to Bidders within 7 calendar days after the date of Bid opening.

16. BIDS TO REMAIN SUBJECT TO ACCEPTANCE

A. The apparent Successful Bid and the next two lowest Bids will remain subject to acceptance for 60 calendar days after the day of the Bid opening. All other Bids will be released and the Bid security returned within 7 days. OWNER may, in its sole discretion, release any Bid and return the Bid security prior to that date.

17. AWARD OF CONTRACT

A. Contract will be awarded on basis of low Base Bid. Selection of alternates or deductive Bid Items by the OWNER will not be used to displace the low Bidder.

B. The Owner reserves the right to reject any and all bids, to waive any and all informalities not involving price, time or changes in the Work, to negotiate contract terms with the Successful Bidder, and to disregard all non-conforming, non-responsive, unbalanced or conditional Bids. Also, OWNER reserves the right to reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by OWNER. Discrepancies in the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

C. In evaluating Bids, OWNER will consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

D. OWNER may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Supplementary Conditions. OWNER also may consider the operating costs, maintenance requirements, performance data, and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.

E. OWNER may conduct such investigations as OWNER deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to OWNER'S satisfaction within the prescribed time.

F. Alternate bid items are included in the Bid Form. The Successful Bidder will be determined based on either the low Base Bid (Part C of the Bid), or the low Base Bid Plus Alternate Bid (Part E of the Bid), at the discretion of the OWNER.

G. If the Contract is to be awarded, OWNER will give the Successful Bidder a Notice of Award within 60 calendar days after the day of the Bid opening.

18. CONTRACT SECURITY

A. Paragraph 5.1 of the General Conditions and the Supplementary Conditions set forth OWNER'S requirements as to performance and payment Bonds. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required performance and payment Bonds.

19. INSURANCE CERTIFICATES

A. The CONTRACTOR shall provide and maintain a minimum coverage as defined in the Contract Documents (Article 5 of the General Conditions). The companies providing the coverage shall be acceptable to the OWNER (Certificate of Insurance Section 00620).

20. SIGNING OF AGREEMENT

A. When OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within 15 calendar days thereafter, CONTRACTOR shall sign and deliver the required number of counterparts of the Agreement, and attached documents to OWNER with the required Bonds. Within 10 calendar days thereafter, OWNER shall deliver one fully signed counterpart to CONTRACTOR. Each counterpart is to be accompanied by a complete set of the Drawings with appropriate identification.

21. PRE-BID CONFERENCE

A. A pre-bid conference will be held at the time and place indicated in the Invitation to Bid (Section 00100). Representatives of OWNER and ENGINEER will be present to discuss the Project. All prospective bidders are encouraged to attend and participate in the conference. ENGINEER will notify all prospective Bidders of record of any such Addenda as ENGINEER considers necessary in response to questions arising at the conference.

22. SALES TAX

A. Owner is exempt from Texas sales and use taxes pursuant to Texas Tax Code §151.309 as a political subdivision of the State of Texas. OWNER shall provide CONTRACTOR with a completed Texas Sales and Use Tax Exemption Certification as evidence of the applicability of such exemption and, accordingly, CONTRACTOR shall not collect Texas sales and use taxes from OWNER with respect to this Contract. CONTRACTOR and all Subcontractors to CONTRACTOR shall issue a Texas Sales and Use Tax Exemption Certification with respect to, and shall not pay Texas sales and use taxes on, all purchases of the following items that are exempt from Texas sales and use taxes pursuant to Texas Tax Code §151.311: (i) tangible personal property that will be incorporated into OWNER'S realty; (ii) tangible personal property that is necessary and essential for the performance of this Contract and is consumed entirely on the job site; and (iii) taxable services for use in the performance of this Contract that are performed at the job site and are either integral to the performance of this Contract or expressly required to be provided by this Contract. In addition, CONTRACTOR and all Subcontractors to CONTRACTOR (i) shall not include any provision for Texas sales and use taxes with respect to such exempt items in any bid or contract amount, and (ii) shall pass on to OWNER cost savings due to the exempt status of such exempt items. CONTRACTOR'S contracts with all Subcontractors to CONTRACTOR shall include the foregoing provision regarding the exemption from Texas sales and use taxes.

++ END OF SECTION ++

City of Tomball
Public Works Department

* 501 James St. * Tomball, Texas 77375 * 281.290.1425 * FAX 281.351.4735 *

* Utilities * Streets * Parks * Fleet Maintenance * Facilities Maintenance * Solid Waste *

INTEROFFICE MEMORANDUM

To: George Shackelford, City Manager
Mayor and City Council

From: David Kauffman, Director of Public Works

Re: Project #2011-02 SWWTP Headworks Replacement - Summary Regarding Receipt and Administration of Documents

Date: March 17, 2011

The purpose of this memo is to summarize the receipt and administration of submittals for this project.

Background

An item to award contract for the reference project was brought to City Council on March 7, 2010. City Council elected to table the item at that time as the project engineer was unable to attend and answer questions pertaining to his recommendation for award.

In addition, Mr. Kenneth Tidwell, representing Desert Eagle, LLC (dba Panorama) was in attendance at the March 7, 2010 Council Meeting. Mr. Tidwell stated that the project engineer did not qualify his company's bid because the bid did not include the required bid bond and company references. Mr. Tidwell claimed during the March 7 Council Meeting that his company submitted their bid with the required bid bond and references, and that as soon as he was told that there were no references found, he immediately submitted references by mailing them to the City.

History

Water Works Engineers began design for the project in October 2010, and prepared project specifications and bid documents in January 2011. The project was advertised for bids beginning January 20, 2011. Bids were received and publicly opened on February 22, 2011 at 9:00 A.M.

Several bidders were in attendance during the bid opening, including Mr. Tidwell. Also in attendance were; Rob Bryant, project engineer, and City staff members, Steve Purvis and Theresa Witt. Ms. Witt conducted the bid opening and opened and read all bids. I had an 8:00 A.M. meeting and arrived at the bid opening as the final bids were opened.

Once all bids were opened and read, Ms. Witt advised all attendees that the bids will be reviewed by the project engineer and the recommended bidder would be announced as soon as the engineer's review was complete.

On February 24, 2011, I received notice from Rob Bryant (attached) that JTR Constructors was selected based on their positive reputation for similar projects. I had concerns that the initial low bid was not being recommended and called Mr. Bryant to discuss. Mr. Bryant informed me that Panorama did not provide references. However, since no references were given, Mr. Bryant contacted related equipment suppliers and engineering firms and he could not find any history for Panorama. I then called Ms. Witt to ask about submittals for all of the bids, and she confirmed that two bidders did not provide references, including Panorama, and that Panorama also did not provide a bid bond.

On February 25, 2011, I received notice from Doris Speer that Mr. Tidwell had contacted her with concerns about the engineer's recommendation for award. I called Mr. Tidwell to discuss his concerns and he stated that Mr. Bryant advised him that his bid was unresponsive and he could not find verifiable history for Panorama. Mr. Tidwell clearly stated to me that he did not submit references with his bid because his company was new and did not have any references.

When I asked Mr. Tidwell if he was aware that his bid also did not include the required bid bond, he stated that he believed a bond was submitted with his bid. I then contacted Ms. Witt and advised that Panorama claimed that a bond was provided with their bid.

After sifting through Panorama's submittal, Ms. Witt discovered the bid bond and explained that the entire bid packet was stapled together as one document and she must have overlooked the bond when she initially reviewed the bids. I then asked Ms. Witt to check Panorama's bid again for references and none were found. Ms. Witt immediately notified Mr. Tidwell and Mr. Bryant that Panorama's bid did in fact contain a bid bond and no references.

On March 3, 2011, I received notice from Ms. Witt that a packet postmarked March 1, 2011, was received from Panorama. The packet contained a cover letter date February 28, 2011, and a binder with the heading "Contractor's References and Qualifications". Mr. Bryant and I agreed that it would not be fair or appropriate to consider an unsolicited late submittal.

On March 4, 2011, Mr. Bryant advised that he was contacted by Mr. Tidwell regarding Panorama's late submittal, and that he informed Mr. Tidwell that it could not be considered.

On March 4, 2011, I reviewed all facts and findings with Mr. Bryant and confirmed that Panorama was not being recommended based on lack of verifiable history and lack of required submittals, and that JTR Constructors is being recommended based on verifiable history of successful completion of comparable projects.

On March 8, 2011, I began reviewing the process conducted by staff for receiving and administering the project bid documents. Although the mishap with Panorama's bond clearly was an unintentional oversight, and was not the singular basis for the engineer's recommendation; the error was avoidable and has potentially created unnecessary confusion regarding the administration process.

I believe the basis for the confusion in this matter was that Ms. Witt opened, examined, and read the bids unassisted.

Utilizing a second person would have allowed Ms. Witt to open and read bids, while a second person inventoried the bids and accounted for required submittals. Additionally, as the bids are read and announced, the contents of each bid should be documented as an informal tabulation.

This has been the general process used by staff in the past. Conducting bid openings in this manner, while bidders are present, identifies apparent unresponsive bids on the spot, and significantly minimizes the potential for confusion and unwarranted claims of mishandling.

Assurances have been established that ensure that all bids for public works projects are opened utilizing two people, and that each bid is publicly inventoried and documented.

I am confident that the bids for this project were properly handled, and that Panorama admittedly did not provide the required references, as stated to me by Mr. Tidwell and as the engineer's supplementary diligence provided.

However, unwarranted perplexity in this matter was generated by a deficiency in process, and I assure you that the methods used by staff have been corrected in order to prevent similar recurrences of this nature.

Feel free to call on me if you need additional information.

WATERWORKS
ENGINEERS

David Kauffman
Director of Public Works
501 James St.
Tomball, TX 77375

Principals
James J. Geselbracht, P.E. (CA)
Sami A. Kader, P.E. (CA)
John H. Matta, P.E. (AZ)

3/15/2011

Subject: South Wastewater Treatment Plant Headworks Replacement
Summary of Award Process

Dear Mr. Kauffman:

Please find in the following a summary of the process conducted during the bid evaluation and subsequent award of contract to JTR Constructors, Inc.

There were six (6) submittals received, four were deemed responsive as they submitted all of the required documentation (financial and experience summaries, etc).

The following timeline documents the process conducted:

- Plans and Specifications sent to A&E: 01/19/2011
  - Attachment A: Notice to Bidders – draft version, not signed and certified
- Start of Advertisement: 01/20/2011
  - Attachment B: Notice to Bidders posted on City website – signed and certified
  - Direct mail of notice to the following contractors based on past work experience:
    - LEM Construction
    - N&S Construction
    - T&C Construction
    - Nunn Constructors
    - Peltier Brothers
    - Industrial Texas
- Non-Mandatory Prebid: 02/01/2011
  - Contractor Attendees:
    - JTR Constructors (Tony Gonzalez)
    - Liftwater Construction (Everett Johnson)
    - Panorama Construction (Ken Tipwell)
- Addendum 1 issued: 02/07/2011
  - Attachment C
- Bids received: 02/22/2011 – 9am
  - Attachment D: Bid Tabulation
  - Attachment E: Panorama/Desert Eagle Bid (initial low bidder)

        - No References included as required Section 00200.3.A (Qualifications of Bidders)
            1. Since no references were submitted, WWE contacted three equipment suppliers to determine if Panorama/Desert Eagle had performed work in the area. None of the contacted suppliers had heard of or worked with Panorama/Desert Eagle.
            2. BBB Rating – No records exist for either company (Panorama or Desert Eagle).
        - Based on the lack of references and the lack of local industry knowledge regarding this company, the bid was deemed unresponsive. The next lowest priced bidder was evaluated.
    - Attachment F: JTR Constructors Bid (second lowest bidder)
        - References were called and verified that JTR has satisfactory experience with similar size and scope of projects
        - BBB Rating: A+
        - Bond was verified with issuer as being current and JTR is in good standing.
        - Based on the positive references and BBB listing, JTR's bid was deemed lowest, most-responsive. Award was therefore recommended for JTR.
- Receipt of unsolicited additional information from Panorama: 03/02/2011
    - Attachment G

This summarizes the timeline regarding the advertisement and receipt of bids regarding the South WWTP Headwork's Replacement project.

Should you have any other questions regarding this recommendation, please feel free to call me at 832-398-1510.

Very Truly Yours
WATER WORKS ENGINEERS, LLC

Rob Bryant, PE
Project Manager

ATTACHMENT A

DRAFT - Bid Notice at Reprographics Company

City of Tomball

Gretchen Fagan
Mayor

George Shackelford
City Manager

NOTICE TO BIDDERS

The City of Tomball, Texas shall accept sealed bids for "**South Wastewater Treatment Plant – Headworks Replacement.**" The Bid Documents may be obtained through the City's Engineering and Planning Department's Capital Improvements Webpage (http://www.ci.tomball.tx.us/engineering-planning/capital-improvement/index.html).

Sealed bids shall be addressed to the City Purchasing Agent, City of Tomball, 501 James Street, Tomball, Texas 77375, and shall be labeled **"Project Number 2011-02, DO NOT OPEN"**. Bids shall be submitted no later than **10:00 a.m., Local Time on December 1, 2011.**

A pre-bid conference will be held on November 19, 2011, at 10:00 a.m. at the City of Tomball, Public Works Building, 501 James Street, Tomball, Texas 77375, to familiarize the Bidders with the goals for this project. The pre-bid conference is not manadatory.

DRAWINGS and SPECIFICATIONS are on file at the following locations and may be examined without charge:

- Dodge Reports - 4101 Greenbriar Suite 320, Houston, Texas 77098
- Associated General Contractors – 2400 Augusta Street Suite 180, Houston, Texas 77057

Cashier's Check, Certified Check, or Bid Bond in an amount equal to five percent (5%) of the total amount bid must accompany the BID. The Owner reserves the right to reject any or all bids or to accept any bid deemed advantageous to it and waive informalities in bidding. All bids received after the closing time designated will be returned unopened.

Upon consideration of the bids, the City of Tomball reserves the right to accept or to reject any and all bids, to waive technicalities and to make any investigation deemed necessary concerning the bidder's ability to provide the services as covered by the specifications, and to accept what in their judgment is the most advantageous bid.

George Shackelford, City Manager

CERTIFICATION

I certify that the above "Notice to Bidders" was posted on the bulletin board of City Hall, City of Tomball, Texas on the ___ day of _____, 2011.

Doris Speer, City Secretary

ATTACHMENT B

Bid Notice Posted on City Website

City of Tomball

Gretchen Fagan
Mayor

George Shackelford
City Manager

NOTICE TO BIDDERS
PROJECT NUMBER 2011-02

The City of Tomball, Texas shall accept sealed bids for "**South Wastewater Treatment Plant – Headworks Replacement.**"

Sealed bids shall be addressed to the City Purchasing Agent, City of Tomball, 501 James Street, Tomball, Texas 77375, and shall be labeled **"Project Number 2011-02, DO NOT OPEN"**. Bids shall be submitted no later than **9:00 a.m., Local Time on Tuesday, February 8, 2011** at which time all bids shall be opened and read aloud.

A pre-bid conference will be held on Tuesday, February 1, 2011, at 10:00 a.m. at the City of Tomball, Public Works Building, 501 James Street, Tomball, Texas 77375, to familiarize the Bidders with the goals for this project. The pre-bid conference is not mandatory.

DRAWINGS and SPECIFICATIONS are on file at the following locations and may be examined without charge:

- Dodge Reports - 4101 Greenbriar Suite 320, Houston, Texas 77098
- Associated General Contractors – 2400 Augusta Street Suite 180, Houston, Texas 77057

DRAWINGS and SPECIFICATIONS may be purchased for a non-refundable fee of $30.00 from:

A&E The Graphics Complex
361 Greens Road
Houston, TX 77060
281-875-2500

Cashier's Check, Certified Check, or Bid Bond in an amount equal to five percent (5%) of the total amount bid must accompany the BID. The Owner reserves the right to reject any or all bids or to accept any bid deemed advantageous to it and waive informalities in bidding. All bids received after the closing time designated will be returned unopened.

Upon consideration of the bids, the City of Tomball reserves the right to accept or to reject any and all bids, to waive technicalities and to make any investigation deemed necessary concerning the bidder's ability to provide the services as covered by the specifications, and to accept what in their judgment is the most advantageous bid.

George Shackelford
George Shackelford, City Manager

CERTIFICATION

I certify that the above "Notice to Bidders" was posted on the bulletin board of City Hall, City of Tomball, Texas on the 20th day of January 2011.

Doris Speer
Doris Speer, City Secretary

ATTACHMENT C

Addendum 1

Document 00910

ADDENDUM NO. 1

Date of Addendum: February 7, 2011

PROJECT NAME: South Wastewater Treatment Plant Headworks Replacement

PROJECT NO: 2011-02

ORIGINAL BID DATE: February 8, 2011

FROM: City of Tomball, Public Works Department
501 James St
Tomball, TX 77375
Attn: Steve Purvis, Project Manager

TO: Prospective Bidders

This Addendum form is a part of the Bidding Documents and will be incorporated into the Contract documents, as applicable. Insofar as the original Project Manual and Drawings are inconsistent, this Addendum governs.

CHANGE IN BID DATE

The Bid Date for this Project has been changed from **02/08/2011** (Date) to **02/22/2011** (Date).
Time of day and place for submittal of bid remains the same.

END OF ADDENDUM NO. 1

DATED: February 7, 2011

END OF DOCUMENT

City of Tomball, TX - Bid Tabulation

Project: South Wastewater Treatment Plant Headworks Replacement
Bid Opening Date: February 22, 2011

Engineer: Water Works Engineers
Project Number: 2011-002

Bidder	Address	Phone	Signatory	References	Bid Bond	A. Stipulated Price	B. Base Unit Price	C. Extra Unit Price	D. Cash Allowance	E. Alternates			F. Total Bid Price
										1A-Headworks	1B-JWC	1C-Meunier	(with 1A)
Desert Eagle, LLC (dba Panorama)	822 Durham, Ste 100 Houston, TX 77007	(713) 883-8830	Bashar Asurbia (Owner/Manager)	No	Yes	$ 42,280.83	$ -	$ -	$ -	$ 183,767.00	$ 187,423.00	$ 154,000.00	$ 226,047.83
JTR Constructors, Inc.	4718 Green Trail Houston, TX 77084	(281) 550-7107	Tony Gonzalez (President)	Yes	Yes	$ -	$ -	$ -	$ -	$ 256,250.00	$ 260,100.00	$ 239,000.00	$ 256,250.00
T&C Construction, LTD	5411 Killough Houston, TX 77086	(281) 445-1828	Thomas Rumney (President)	Yes	Yes	$ 72,000.00	$ -	$ -	$ -	$ 191,000.00	$ 195,000.00	$ 165,000.00	$ 263,000.00
Liftwater Construction, Inc.	22803 Schiel Rd Cypress, TX 77433	(281) 373-0367	Everett Johnson (Vice President)	Yes	Yes	$ -	$ -	$ -	$ -	$ 263,250.00	$ 266,960.00	$ 239,600.00	$ 263,250.00
B-5 Construction Co, Inc	PO Box 1488 Magnolia, TX 77353	(281) 356-3264	Cecil Bell (President)	Yes	Yes	$ -	$ -	$ -	$ -	$ 275,792.00	$ 279,873.00	$ 247,715.00	$ 275,792.00
Peltier Brothers Construction, LTD	11603 Windfern Houston, TX 77064	(281) 894-4949	Jeremy Peltier (Partner)	No	Yes	$ -	$ -	$ -	$ -	$ 281,475.00	$ 285,450.00	$ 254,200.00	$ 281,475.00

= Recommended Award

Document 00410A

BID FORM – PART A

To: **The Honorable Mayor and City Council of the City of Tomball**
City Hall

Tomball, Texas

Project: South Wastewater Treatment Plant – Headworks Replacement
Project No.: _____
Bidder: DESERT EAGLE, LLC (dba PANORAMA)
(Print or type full name of proprietorship, partnership, corporation, or joint venture.)

1.0 OFFER

A. Total Bid Price: Having examined the Project location and all matters referred to in Bid Documents for the Project, we, the undersigned, offer to enter into a Contract to perform the Work for the Total Bid Price shown on the signature page of this Document

B. Security Deposit: Included with the Bid is a Security Deposit in the amount of 10 percent of the Total Bid Price subject to terms described in Document 00200 – Instructions to Bidders.

C. Period for Bid Acceptance: This offer is open to acceptance and is irrevocable for 90 days from Bid Date. That period may be extended by mutual written agreement of the City and Bidder.

D. Addenda: All Addenda have been received. Modifications to Bid Documents have been considered and all related costs are included in the Total Bid Price.

E. Bid Supplements: The following documents are attached:

[X] Security Deposit *(as defined in Document 00200 – Instructions to Bidders)*
[X] Document 00453 – Bidder's Statement of Residency
[X] Document 00455 – Affidavit of Ownership or Control
[ ] Page 00809-63, Request for Contractor Clearance
[ ] Others as listed: _____

2.0 CONTRACT TIME

A. If offer is accepted, Contractor shall achieve Date of Substantial Completion within 100 days after Date of Commencement of the Work, subject to adjustments of Contract Time as provided in the Contract.

Document 00410B

BID FORM – PART B

1.0 TOTAL BID PRICE HAS BEEN CALCULATED BY BIDDER, USING THE FOLLOWING COMPONENT PRICES AND PROCESS (PRINT OR TYPE NUMERICAL AMOUNTS):

A. STIPULATED PRICE: $ 42,280.83

(Total Bid Price; minus Base Unit Prices, Extra Unit Prices, Cash Allowances and All Alternates, if any)

B. BASE UNIT PRICE TABLE:

Item No.	Control No.	Item Description	Unit Measure	Unit Quantity	Unit Price	Total in figures
		N/A				
TOTAL BASE UNIT PRICES						$ N/A

C. EXTRA UNIT PRICE TABLE:

Item No.	Control No.	Item Description	Unit Measure	Unit Quantity	Unit Price	Total in figures
		N/A				
TOTAL EXTRA UNIT PRICES						$ N/A

REST OF PAGE INTENTIONALLY LEFT BLANK

D. CASH ALLOWANCE TABLE:

Cash Allowance No.	Cash Allowance Short Title	Cash Allowance in figures
	N/A	
TOTAL CASH ALLOWANCES		N/A

E. ALTERNATES TABLE:

Alternate No.	Alternate Short Title (Perforated Plate Screen (6mm opening) and Washer/Compactor)	Total Price for Alternate in figures
1a	Headworks Perforated Screen and Screwpactor	183,767.00
1b	JWC Fine Screen and Screenings Washer without grinder	187,423.00
1c	Meunier Escalator Fine Screen and Rotopac	154,000.00

F. TOTAL BID PRICE: $ 196,280.83
(Add Totals for Items A., B., C., D., and E. above)

2.0 SIGNATURES: By signing this Document, I agree that I have received and reviewed all Addenda and considered all costs associated with the Addenda in calculating the Total Bid Price.

Bidder: Desert Eagle LLC. (dba PANORAMA)
(Print or type full name of your proprietorship, partnership, corporation, or joint venture.*)

**By: [signature] 2/22/11
Signature Date

Name: Bashar Asouri Owner / Manager
(Print or type name) Title

Address: 822 Walton Suite 100
(Mailing)

(Street, if different)

Telephone and Fax Number: 713-863-8830 - FAX 713-583-5260
(Print or type numbers)

* If Bid is a joint venture, add additional Bid Form signature sheets for each member of the joint venture.

** Bidder certifies that the only person or parties interested in this offer as principals are those named above. Bidder has not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding.

Note: This document constitutes a government record, as defined by § 37.01 of the Texas Penal Code. Submission of a false government record is punishable as provided in § 37.10 of the Texas Penal Code.

+ + END OF SECTION + +

Document 00453

BIDDER'S STATEMENT OF RESIDENCY

The City may not award a contract for general construction, services, or purchases to a Nonresident Bidder unless Nonresident's Bid is lower than the lowest Bid submitted by a responsible Texas Resident Bidder by the same amount that a Texas Resident bidder would be required to underbid the Nonresident Bidder to obtain a comparable contract in the state in which Nonresident's principle place of business is located.

1. This certifies that the Bidder, Desert Eagle, LLC. (dba PANORAMA), is a State of Texas Resident Bidder as defined in TEX. GOVT. CODE ANN. § 2252.001(4) (Vernon 1994).

Signature _____ Title Owner Manager

"Texas Resident Bidder" means a bidder whose principal place of business is in this State, and includes a Contractor whose ultimate parent company or majority owner has its principal place of business in this State. *When bidder cannot sign 1, above, proceed to 2.*

2. a. _____ is a resident of _____ and is a Nonresident Bidder as defined in TEX. GOVT. CODE ANN. § 2252.001(3) (Vernon 1994).

Signature _____ Title _____

"Nonresident Bidder" means a bidder whose principal place of business is not in this State, but excludes a contractor whose ultimate parent company or majority owner has its principal place of business in this State.

b. The State of _____ (Bidder's resident state) _____ (Does or Does Not) have a state statute giving preference to resident bidders.

Signature _____ Title _____

If the answer to 2.b is that your state does have a statute giving preference to resident bidders, then you must provide a copy and proceed to 3.

3. A copy of the State of _____ statute is attached.

Signature _____ Title _____

Date _____

END OF DOCUMENT

Orig. Dept.: _____ File/I.D. No.: _____

INSTRUCTION: Entities using an assumed name should disclose such fact to avoid rejection of the affidavit. The following format is recommended: Corporate/Legal Name d.b.a. Assumed Name.

Document 00455

AFFIDAVIT OF OWNERSHIP OR CONTROL

BEFORE ME, the undersigned authority, on this day personally appeared BASHAR ABURUBIA (Full Name, hereafter "Affiant"), Owner / Manager (state title/capacity with Contracting Entity) of Desert Eagle, LLC. (dba PANORAMA) (Contracting Entity's Corporate/Legal Name) ("Contracting Entity"), who being by me duly sworn on oath stated as follows:

1. Affiant is authorized to give this affidavit and has personal knowledge of the facts and matters herein stated.

2. Contracting Entity seeks to do business with the City in connection with South Wastewater Treatment Plant (describe project or matter) which is expected to be in an amount that exceeds $25,000.

3. The following information is submitted in connection with the proposal, submission or bid of Contracting Entity in connection with the above described project or matter.

4. Contracting Entity is organized as a business entity as noted below (check box as applicable):

FOR PROFIT ENTITY:
[ ] SOLE PROPRIETORSHIP
[ ] CORPORATION
[ ] PARTNERSHIP
[ ] LIMITED PARTNERSHIP
[ ] JOINT VENTURE
[X] LIMITED LIABILITY COMPANY
[ ] OTHER (Specify type in space below)

NON-PROFIT ENTITY:
[ ] NON-PROFIT CORPORATION
[ ] UNINCORPORATED ASSOCIATION

Orig. Dept.: _____ File/I.D. No.: _____

5. The information shown below is true and correct for the Contracting Entity and all owners of 5% or more of the Contracting Entity and, where the Contracting Entity is a non-profit entity, the required information has been shown for each officer. (NOTE: In all cases, use full names, local business and residence addresses and telephone numbers. Do not use post office boxes for any address. Inclusion of e-mail addresses is optional, but recommended. Attach additional sheets as needed.)

Contracting Entity

Name: BASHAR ASWAD Desert Eagle, LLC. (dba PANDA)

Business Address (No./Street) 822 DURHAM Suite 100

(City/State/Zip Code) HOUSTON TX 77007

Telephone Number (713) 863-8830

Email Address (optional) _____

Residence Address (No./Street) 1805 STONEY BROOK #104

(City/State/Zip Code) HOUSTON TX 77063

Telephone Number (713) 277-4286

Email Address (optional) _____

5% Owner(s) (IF NONE, STATE "NONE.")

Name: _____

Business Address (No./Street) _____

(City/State/Zip Code) _____

Telephone Number (____) _____

Email Address (optional) _____

Residence Address (No./Street) _____

(City/State/Zip Code) _____

Telephone Number (____) _____

Email Address (optional) _____

6. ***Optional Information***

Contracting Entity and/or _____ (Name of Owner or Non-Profit Officer) is actively protesting, challenging or appealing the accuracy and/or amount of taxes levied against _____ (Contracting Entity, Owner or Non-Profit Officer) as follows:

Orig. Dept.: _____ File/I.D. No.: _____

Project No. 2011-002

AFFIDAVIT OF OWNERSHIP OR CONTROL

Name of Debtor: _____

Tax Account Nos. _____

Case or File Nos. _____

Attorney/Agent Name _____

Attorney/Agent Phone No. (_____)_____

Tax Years _____

Status of Appeal (Describe) _____

_____

_____

_____

Affiant certifies that he or she is duly authorized to submit the above information on behalf of the Contracting Entity, that Affiant is associated with the Contracting Entity in the capacity noted above and has personal knowledge of the accuracy of the information provided herein, and that the information provided herein is true and correct to the best of Affiant's knowledge and belief.

_____
Affiant

SWORN TO AND SUBSCRIBED before me this 22 day of February 2011.

(Seal)

KELLEY C. ODOM
Notary Public, State of Texas
My Commission Expires
January 06, 2015

_____
Notary Public

NOTE:
This affidavit constitutes a **government record** as defined by Section 37.01 of the Texas Penal Code. Submission of a false government record is punishable as provided in Section 37.10 of the Texas Penal Code. Attach additional pages if needed to supply the required names and addresses.

+ + END OF DOCUMENT + +

00455-3
01-10-2011

[X] Document 00601 - Drug Policy Compliance Agreement
[X] Document 00602 - Contractor's Drug-free Workplace Policy *(Contractor creates this document.)*
[X] Document 00604 - History of OSHA Actions and List of On-the-job Injuries
[X] Document 00605 - List of Safety Impact Positions *(Contractor completes this list. Do not submit if submitting Document 00606.)*
[ ] Document 00606 - Contractor's Certification of No Safety Impact Positions *(Do not submit if submitting Document 00605.)*
[X] Document 00607 - Certification Regarding Debarment, Suspension, and Other Responsibility Matters
[X] Document 00610 - Performance Bond
[X] Document 00611 - Statutory Payment Bond
[X] Document 00612 - One-year Maintenance Bond
[ ] Document 00613 - One-year Surface Correction Bond
[X] Document 00620 - Affidavit of Insurance *(with Certificate of Insurance attached)*
[X] Document 00622 - Name and Qualifications of Proposed Superintendent *(Contractor creates this document.)*

C. On Bidder's written request, Project Manager may grant an extension of time, not to exceed 5 days, to furnish documents specified in Paragraphs 4.0.A and 4.0.B. If Bidder is required to resubmit documents specified in Paragraph 4.0.A or 4.0.B, Bidder shall do so within time limits provided in the request for resubmission.

5.0 FAILURE OF BIDDER TO COMPLY WITH REQUIREMENTS

A. Should Bidder, on receipt of Notice of Intent to Award, fail to comply with requirements of this Document 00495 within stated time, the City may declare award in default and require forfeiture of the Security Deposit.

B. After the City's written notice of default to Low Bidder, the City may award the Contract to Bidder whose offer is the next lowest bid, and Security Deposit of Bidder in default shall be forfeited to the City in accordance with provisions of Document 00200 - Instructions to Bidders.

6.0 NOTICE TO PROCEED

A. Upon the City's execution of the Agreement and delivery to Contractor, City Engineer will give Document 00551 - Notice to Proceed to Contractor, which establishes Date of Commencement of the Work.

END OF DOCUMENT

Document 00500

FORM OF BUSINESS

Please mark the box describing your firm's form of business, fill in the requested information, and include the relevant attachments.

[ ] **Corporation**
Corporate Name: _____
State of Incorporation: _____
Mailing Address: _____
Type of Corporation: _____

Certificate of Assumed Name, if operating under a name different than that on the corporate charter (the Certificate must have been issued within the past 10 years to be valid)

*Certificate of Good Standing

*Certificate of Existence (if non-Texas corporation, Certificate of Authority)

[ ] **Partnership/Joint Venture**
Partnership/Joint Venture Name: _____
Mailing Address: _____
Type of Partnership/Joint Venture: _____

Copy of the Partnership or Joint Venture Agreement, **or**
Affidavit with the name of the partnership or joint venture, the names of the individual partners or participants in the joint venture, and a statement that the partnership or joint venture is in existence

Certificate of Assumed Name, (the Certificate must have been issued within the past 10 years to be valid)

If firm is a limited partnership, the Certificate of Limited Partnership

If any partner or joint venturer is a corporation, the above information relating to corporation must be included as to each sum partner or joint venturer.

[X] **Sole Proprietorship** Limited Liability Company

Name: Bashar Abuawsia
Mailing Address: 822 Dolton Suite 100

Certificate of Assumed Name, if operating under a name different than that of the sole proprietor (the Certificate must have been issued within the past 10 years to be valid)

* Must be furnished upon request of the Director and must be less than 90 days old.

END OF DOCUMENT

Document 00430

BIDDER'S BOND

THAT WE, Desert Eagle, LLC (dba Panorama) (Bidder), as Principal, ("Bidder"), and the other subscriber hereto, SureTec Insurance Company, as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of Tomball, a municipal corporation, in the sum of Ten Percent Greatest Amount Bid Dollars ($ 10% GAB) (an amount equal to 10 percent of the Total Bid Price, including Cash Allowances and Alternates, if any, for the payment of which sum, well and truly to be made to the City of Tomball and its successors, the Bidder and Surety do bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Bidder has submitted on or about this day a proposal offering to perform the following:

South Wastewater Treatment Plant Headworks Replacement

Tomball, TX 2011-002

(Project Name, Location and Number)

in accordance with the Drawings, Specifications, and terms and conditions related thereto to which reference is hereby made.

NOW, THEREFORE, If the Bidder's offer as stated in the Document 00410 – Bid Form is accepted by the City, and the Bidder executes and returns to the City Document 00520 – Agreement, required by the City, on the forms prepared by the City, for the Work and also executes and returns the same number of the Performance, Payment and Maintenance Bonds (such bonds to be executed by a Corporate Surety authorized by the State Board of Insurance to conduct insurance business in the State of Texas, and having an underwriting limitation in at least the amount of the bond) and other submittals as required by Document 00495 - Post-Bid Procedures, in connection with the Work, within the Contract Time, then this obligation shall become null and void; otherwise it is to remain in full force and effect.

If Bidder is unable to or fails to perform the obligations undertaken herein, the undersigned Bidder and Surety shall be liable to the City for the full amount of this obligation which is hereby acknowledged as the amount of damages which will be suffered by the City on account of the failure of such Bidder to perform such obligations, the actual amount of such damages being difficult to ascertain.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other Party at the address prescribed in the Contract documents, or at such other address as the receiving Party may hereafter prescribe by written notice to the sending Party.

IN WITNESS THEREOF, the Bidder and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (If a corporation)
WITNESS: (If not a corporation)

By: X
Name:
Title:

ATTEST/SURETY WITNESS: (SEAL)

By: Frandine Hay
Name: Frandine Hay
Title: Bond Account Manager
Date: February 8, 2011

Desert Eagle, LLC (dba Panorama)
(Name of Bidder)

By:
Name:
Title:
Date:

SureTec Insurance Company
(Full Name of Surety)
952 Echo Lane, Suite 450
(Address of Surety for Notice)
Houston, TX 77024
713-812-0800
(Telephone Number of Surety)

By:
Name: Dennis M. Descant, Jr.
Title: Attorney-in-Fact
Date: February 8, 2011

END OF DOCUMENT

POA #: 4221073

SureTec Insurance Company
LIMITED POWER OF ATTORNEY

Know All Men by These Presents, That SURETEC INSURANCE COMPANY (the "Company"), a corporation duly organized and existing under the laws of the State of Texas, and having its principal office in Houston, Harris County, Texas, does by these presents make, constitute and appoint

Dennis M. Descant, Jr.

its true and lawful Attorney-in-fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver any and all bonds, recognizances, undertakings or other instruments or contracts of suretyship to include waivers to the conditions of contracts and consents of surety, providing the bond penalty does not exceed

Five Million Dollars and no/100 ($5,000,000.00)

and to bind the Company thereby as fully and to the same extent as if such bond were signed by the President, sealed with the corporate seal of the Company and duly attested by its Secretary, hereby ratifying and confirming all that the said Attorney(s)-in-Fact may do in the premises. Said appointment shall continue in force until 12/31/2012 and is made under and by authority of the following resolutions of the Board of Directors of the SureTec Insurance Company:

Be it Resolved, that the President, any Vice-President, any Assistant Vice-President, any Secretary or any Assistant Secretary shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

Attorney-in-Fact may be given full power and authority for and in the name of and of behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements or indemnity and other conditional or obligatory undertakings and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be binding upon the Company as if signed by the President and sealed and effected by the Corporate Secretary.

Be it Resolved, that the signature of any authorized officer and seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signature or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached. *(Adopted at a meeting held on 20th of April, 1999.)*

In Witness Whereof, SURETEC INSURANCE COMPANY has caused these presents to be signed by its President, and its corporate seal to be hereto affixed this 28th day of October, A.D. 2008.

SURETEC INSURANCE COMPANY

By: _____
B.J. King, President

State of Texas ss:
County of Harris

On this 28h day of October, 2008 before me personally came B.J. King, to me known, who, being by me duly sworn, did depose and say, that he resides in Houston, Texas, that he is President of SURETEC INSURANCE COMPANY, the company described in and which executed the above instrument; that he knows the seal of said Company; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said Company; and that he signed his name thereto by like order.

Michelle Denny
Notary Public
State of Texas
Expires August 27, 2012

_____
Michelle Denny, Notary Public
My commission expires August 27, 2012

I, M. Brent Beaty, Assistant Secretary of SURETEC INSURANCE COMPANY, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Company, which is still in full force and effect; and furthermore, the resolutions of the Board of Directors, set out in the Power of Attorney are in full force and effect.

Given under my hand and the seal of said Company at Houston, Texas this 8th day of February, 2011, A.D.

_____
M. Brent Beaty, Assistant Secretary

Any instrument issued in excess of the penalty stated above is totally void and without any validity.
For verification of the authority of this power you may call (713) 812-0800 any business day between 8:00 am and 5:00 pm CST.

SureTec Insurance Company
THIS BOND RIDER CONTAINS IMPORTANT COVERAGE INFORMATION

Statutory Complaint Notice

To obtain information or make a complaint: You may call the Surety's toll free telephone number for information or to make a complaint at: 1-866-732-0099. You may also write to the Surety at:

SureTec Insurance Company
9737 Great Hills Trail, Suite 320
Austin, Tx 78759

You may contact the Texas Department of Insurance to obtain information on companies, coverage, rights or complaints at 1-800-252-3439. You may write the Texas Department of Insurance at

PO Box 149104
Austin, TX 78714-9104
Fax#: 512-475-1771
Web: http://www.tdi.state.tx.us
Email: ConsumerProtection@tdi.state.tx.us

PREMIUM OR CLAIM DISPUTES: Should you have a dispute concerning your premium or about a claim, you should contact the Surety first. If the dispute is not resolved, you may contact the Texas Department of Insurance.

Terrorism Risks Exclusion

The Bond to which this Rider is attached does not provide coverage for, and the surety shall not be liable for, losses caused by acts of terrorism, riot, civil insurrection, or acts of war.

Exclusion of Liability for Mold, Mycotoxins, Fungi & Environmental Hazards

The Bond to which this Rider is attached does not provide coverage for, and the surety thereon shall not be liable for, molds, living or dead fungi, bacteria, allergens, histamines, spores, hyphae, or mycotoxins, or their related products or parts, nor for any environmental hazards, bio-hazards, hazardous materials, environmental spills, contamination, or cleanup, nor the remediation thereof, nor the consequences to persons, property, or the performance of the bonded obligations, of the occurrence, existence, or appearance thereof.

Document 00410A

BID FORM – PART A

To: **The Honorable Mayor and City Council of the City of Tomball**
City Hall

Tomball, Texas

Project: South Wastewater Treatment Plant – Headworks Replacement
Project No.: 2011-002
Bidder: JTR Constructors, Inc. - Corporation
(Print or type full name of proprietorship, partnership, corporation, or joint venture.)

1.0 OFFER

A. **Total Bid Price:** Having examined the Project location and all matters referred to in Bid Documents for the Project, we, the undersigned, offer to enter into a Contract to perform the Work for the Total Bid Price shown on the signature page of this Document

B. **Security Deposit:** Included with the Bid is a Security Deposit in the amount of 10 percent of the Total Bid Price subject to terms described in Document 00200 – Instructions to Bidders.

C. **Period for Bid Acceptance:** This offer is open to acceptance and is irrevocable for 90 days from Bid Date. That period may be extended by mutual written agreement of the City and Bidder.

D. **Addenda:** All Addenda have been received. Modifications to Bid Documents have been considered and all related costs are included in the Total Bid Price.

E. **Bid Supplements:** The following documents are attached:

[X] Security Deposit *(as defined in Document 00200 – Instructions to Bidders)*
[X] Document 00453 – Bidder's Statement of Residency
[X] Document 00455 – Affidavit of Ownership or Control
[ ] Page 00809-63, Request for Contractor Clearance
[ ] Others as listed: _____

2.0 CONTRACT TIME

A. If offer is accepted, Contractor shall achieve Date of Substantial Completion within 100 days after Date of Commencement of the Work, subject to adjustments of Contract Time as provided in the Contract.

Document 00410B

BID FORM – PART B

1.0 TOTAL BID PRICE HAS BEEN CALCULATED BY BIDDER, USING THE FOLLOWING COMPONENT PRICES AND PROCESS (PRINT OR TYPE NUMERICAL AMOUNTS):

A. STIPULATED PRICE: $

(Total Bid Price; minus Base Unit Prices, Extra Unit Prices, Cash Allowances and All Alternates, if any)

B. BASE UNIT PRICE TABLE:

Item No.	Control No.	Item Description	Unit Measure	Unit Quantity	Unit Price	Total in figures
		N/A				
TOTAL BASE UNIT PRICES						$ N/A

C. EXTRA UNIT PRICE TABLE:

Item No.	Control No.	Item Description	Unit Measure	Unit Quantity	Unit Price	Total in figures
		N/A				
TOTAL EXTRA UNIT PRICES						$ N/A

REST OF PAGE INTENTIONALLY LEFT BLANK

D. CASH ALLOWANCE TABLE:

Cash Allowance No.	Cash Allowance Short Title	Cash Allowance in figures
	N/A	
TOTAL CASH ALLOWANCES		N/A

E. ALTERNATES TABLE:

Alternate No.	Alternate Short Title (Perforated Plate Screen (6mm opening) and Washer/Compactor)	Total Price for Alternate in figures
1a	Headworks Perforated Screen and Screwpactor	$ 254,250.00
1b	JWC Fine Screen and Screenings Washer without grinder	$ 260,100.00
1c	Meunier Escalator Fine Screen and Rotopac	$ 239,000.00

F. TOTAL BID PRICE: $ SEE ABOVE
(Add Totals for Items A., B., C., D., and E. above)

2.0 SIGNATURES: By signing this Document, I agree that I have received and reviewed all Addenda and considered all costs associated with the Addenda in calculating the Total Bid Price.

Bidder: JTR Constructors, Inc.
(Print or type full name of your proprietorship, partnership, corporation, or joint venture.*)

**By: _____ 02/08/11
Signature Date

Name: Tony F. Gonzalez President
(Print or type name) Title

Address: 4718 Green Trail Houston, TX 77084
(Mailing)

(Street, if different)

Telephone and Fax Number: (281)550-7107 (281)859-2939
(Print or type numbers)

* If Bid is a joint venture, add additional Bid Form signature sheets for each member of the joint venture.

** Bidder certifies that the only person or parties interested in this offer as principals are those named above. Bidder has not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding.

Note: This document constitutes a government record, as defined by § 37.01 of the Texas Penal Code. Submission of a false government record is punishable as provided in § 37.10 of the Texas Penal Code.

+ + END OF SECTION + +

Document 00453

BIDDER'S STATEMENT OF RESIDENCY

The City may not award a contract for general construction, services, or purchases to a Nonresident Bidder unless Nonresident's Bid is lower than the lowest Bid submitted by a responsible Texas Resident Bidder by the same amount that a Texas Resident bidder would be required to underbid the Nonresident Bidder to obtain a comparable contract in the state in which Nonresident's principle place of business is located.

1. This certifies that the Bidder, JTR Constructors, Inc., is a State of Texas Resident Bidder as defined in TEX. GOVT. CODE ANN. § 2252.001(4) (Vernon 1994).

Signature _____ President
Title

"Texas Resident Bidder" means a bidder whose principal place of business is in this State, and includes a Contractor whose ultimate parent company or majority owner has its principal place of business in this State. *When bidder cannot sign 1, above, proceed to 2.*

2. a. _____ is a resident of _____ and is a Nonresident Bidder as defined in TEX. GOVT. CODE ANN. § 2252.001(3) (Vernon 1994).

Signature _____ Title _____

"Nonresident Bidder" means a bidder whose principal place of business is not in this State, but excludes a contractor whose ultimate parent company or majority owner has its principal place of business in this State.

b. The State of _____ (Bidder's resident state) _____ (Does or Does Not) have a state statute giving preference to resident bidders.

Signature _____ Title _____

If the answer to 2.b is that your state does have a statute giving preference to resident bidders, then you must provide a copy and proceed to 3.

3. A copy of the State of _____ statute is attached.

Signature _____ Title _____

Date _____

END OF DOCUMENT

Orig. Dept.: _____ File/I.D. No.: _____

INSTRUCTION: Entities using an assumed name should disclose such fact to avoid rejection of the affidavit. The following format is recommended: Corporate/Legal Name d.b.a. Assumed Name.

Document 00455

AFFIDAVIT OF OWNERSHIP OR CONTROL

BEFORE ME, the undersigned authority, on this day personally appeared

Tony F. Gonzalez (Full Name, hereafter "Affiant"),

President (state title/capacity with Contracting Entity) of

JTR Constructors, Inc. (Contracting Entity's Corporate/Legal Name)

("Contracting Entity"), who being by me duly sworn on oath stated as follows:

1. Affiant is authorized to give this affidavit and has personal knowledge of the facts and matters herein stated.

2. Contracting Entity seeks to do business with the City in connection with

City of Tomball-South WWTP Headworks Replacement

(describe project or matter) which is expected to be in an amount that exceeds $25,000.

3. The following information is submitted in connection with the proposal, submission or bid of Contracting Entity in connection with the above described project or matter.

4. Contracting Entity is organized as a business entity as noted below (check box as applicable):

FOR PROFIT ENTITY:
[ ] SOLE PROPRIETORSHIP
[✓] CORPORATION
[ ] PARTNERSHIP
[ ] LIMITED PARTNERSHIP
[ ] JOINT VENTURE
[ ] LIMITED LIABILITY COMPANY
[ ] OTHER (Specify type in space below)

NON-PROFIT ENTITY:
[ ] NON-PROFIT CORPORATION
[ ] UNINCORPORATED ASSOCIATION

_____

_____

_____

Orig. Dept.: _____ File/I.D. No.: _____

5. The information shown below is true and correct for the Contracting Entity and all owners of 5% or more of the Contracting Entity and, where the Contracting Entity is a non-profit entity, the required information has been shown for each officer. (NOTE: In all cases, use full names, local business and residence addresses and telephone numbers. Do not use post office boxes for any address. Inclusion of e-mail addresses is optional, but recommended. Attach additional sheets as needed.)

Contracting Entity

Name: JTR Constructors, Inc.

Business Address (No./Street) 4718 Green Trail

(City/State/Zip Code) Houston, TX 77084

Telephone Number (281)550-7107

Email Address (optional) tfgonzalez@comcast.net

Residence Address (No./Street) same as business

(City/State/Zip Code) _____

Telephone Number (____)_____

Email Address (optional) _____

5% Owner(s) (IF NONE, STATE "NONE.")

Name: None

Business Address (No./Street) _____

(City/State/Zip Code) _____

Telephone Number (____)_____

Email Address (optional) _____

Residence Address (No./Street) _____

(City/State/Zip Code) _____

Telephone Number (____)_____

Email Address (optional) _____

6. *Optional Information*

Contracting Entity and/or _____ (Name of Owner or Non-Profit Officer) is actively protesting, challenging or appealing the accuracy and/or amount of taxes levied against _____ (Contracting Entity, Owner or Non-Profit Officer) as follows:

Orig. Dept.: _____ File/I.D. No.: _____

Project No. 2011-002

AFFIDAVIT OF OWNERSHIP OR CONTROL

Name of Debtor: N/A

Tax Account Nos. _____

Case or File Nos. _____

Attorney/Agent Name _____

Attorney/Agent Phone No. (_____)_____

Tax Years _____

Status of Appeal (Describe) _____

_____

_____

_____

Affiant certifies that he or she is duly authorized to submit the above information on behalf of the Contracting Entity, that Affiant is associated with the Contracting Entity in the capacity noted above and has personal knowledge of the accuracy of the information provided herein, and that the information provided herein is true and correct to the best of Affiant's knowledge and belief.

Tony F. Gonzalez
Affiant

SWORN TO AND SUBSCRIBED before me this 8th day of Feb., 2011.

(Seal)

MARIA T HUERTA
Notary Public, State of Texas
My Commission Expires
09-27-2014

Maria T. Huerta
Notary Public

NOTE:
This affidavit constitutes a **government record** as defined by Section 37.01 of the Texas Penal Code. Submission of a false government record is punishable as provided in Section 37.10 of the Texas Penal Code. Attach additional pages if needed to supply the required names and addresses.

+ + END OF DOCUMENT + +

00455-3
01-10-2011

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 1491, 80th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code by a person who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the person meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. *See* Section 176.006, Local Government Code.

A person commits an offense if the person knowingly violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of person who has a business relationship with local governmental entity.**

JTR Constructors, Inc.

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.)

3 **Name of local government officer with whom filer has employment or business relationship.**

N/A

Name of Officer

This section (item 3 including subparts A, B, C & D) must be completed for each officer with whom the filer has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the filer of the questionnaire?

☐ Yes ☑ No

B. Is the filer of the questionnaire receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☑ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of 10 percent or more?

☐ Yes ☑ No

D. Describe each employment or business relationship with the local government officer named in this section.

None

4

Signature of person doing business with the governmental entity

02/08/11

Date

Adopted 08/29/2007

THE AMERICAN INSTITUTE OF ARCHITECTS

AIA Document A310

Bid Bond

KNOW ALL MEN BY THESE PRESENTS, that we **JTR Constructors, Inc.** as Principal, hereinafter called the Principal, and **Liberty Mutual Insurance Company** a corporation duly organized under the laws of the State of **Massachusetts** as Surety, hereinafter called the Surety, are held and firmly bound unto

City of Tomball

as Obligee, hereinafter called the Obligee, in the sum of **Ten Percent of the Greatest Amount Bid**

Dollars **($ 10% of G.A.B.)**,

for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for

South Wastewater Treatment Plant – Headworks Replacement – Project No. 2011-002

NOW, THEREFORE, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this **8th** day of **February, 2011.**

Terry Huerta
(Witness)

JTR Constructors, Inc.
(Principal) *(Seal)*
President
(Title)

Sheila Fink *(Witness)*

Liberty Mutual Insurance Company
(Surety) *(Seal)*
Kenneth L. Meyer *(Title) Attorney-In-Fact*

4330105

THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

LIBERTY MUTUAL INSURANCE COMPANY
BOSTON, MASSACHUSETTS
POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS: That Liberty Mutual Insurance Company (the "Company"), a Massachusetts stock insurance company, pursuant to and by authority of the By-law and Authorization hereinafter set forth, does hereby name, constitute and appoint

KELLY J. BROOKS, C.A. MCCLURE, KENNETH L. MEYER, MICHELLE M. ULERY, ALL OF THE CITY OF HOUSTON, STATE OF TEXAS

, each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations in the penal sum not exceeding FIFTY MILLION AND 00/100********** DOLLARS ($ 50,000,000.00**********) each, and the execution of such undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents, shall be as binding upon the Company as if they had been duly signed by the president and attested by the secretary of the Company in their own proper persons.

That this power is made and executed pursuant to and by authority of the following By-law and Authorization:

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.
Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

By the following instrument the chairman or the president has authorized the officer or other official named therein to appoint attorneys-in-fact:

Pursuant to Article XIII, Section 5 of the By-Laws, Garnet W. Elliott, Assistant Secretary of Liberty Mutual Insurance Company, is hereby authorized to appoint such attorneys-in-fact as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

That the By-law and the Authorization set forth above are true copies thereof and are now in full force and effect.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Company and the corporate seal of Liberty Mutual Insurance Company has been affixed thereto in Plymouth Meeting, Pennsylvania this 11th day of January, 2011.

LIBERTY MUTUAL INSURANCE COMPANY

By _____
Garnet W. Elliott, Assistant Secretary

COMMONWEALTH OF PENNSYLVANIA ss
COUNTY OF MONTGOMERY

On this 11th day of January, 2011, before me, a Notary Public, personally came Garnet W. Elliott, to me known, and acknowledged that he is an Assistant Secretary of Liberty Mutual Insurance Company; that he knows the seal of said corporation; and that he executed the above Power of Attorney and affixed the corporate seal of Liberty Mutual Insurance Company thereto with the authority and at the direction of said corporation.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Teresa Pastella, Notary Public
Plymouth Twp., Montgomery County
My Commission Expires March 28, 2013
Member, Pennsylvania Association of Notaries

By _____
Teresa Pastella, Notary Public

CERTIFICATE

I, the undersigned, Assistant Secretary of Liberty Mutual Insurance Company, do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy, is in full force and effect on the date of this certificate; and I do further certify that the officer or official who executed the said power of attorney is an Assistant Secretary specially authorized by the chairman or the president to appoint attorneys-in-fact as provided in Article XIII, Section 5 of the By-laws of Liberty Mutual Insurance Company.

This certificate and the above power of attorney may be signed by facsimile or mechanically reproduced signatures under and by authority of the following vote of the board of directors of Liberty Mutual Insurance Company at a meeting duly called and held on the 12th day of March, 1980.

VOTED that the facsimile or mechanically reproduced signature of any assistant secretary of the company, wherever appearing upon a certified copy of any power of attorney issued by the company in connection with surety bonds, shall be valid and binding upon the company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seal of the said company, this 8th day of February, 2011.

By _____
David M. Carey, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, bank deposit, currency rate, interest rate or residual value guarantees.

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

Important Notice

TO OBTAIN INFORMATION OR TO MAKE A COMPLAINT:

You may write to Liberty Mutual Surety at:

Liberty Mutual Surety
Interchange Corporate Center
450 Plymouth Road, Suite 400
Plymouth Meeting, PA 19462-8284

You may contact the Texas Department of Insurance to obtain information on companies, coverages, rights or complaints at:

1-800-252-3439

You may write the Texas Department of Insurance:

P. O. Box 149104
Austin, TX 78714-9104
Fax: (512) 475-1771
Web: http://www.tdi.state.tx.us
E-mail: ConsumerProtection@tdi.state.tx.us

Premium or Claim Disputes

Should you have a dispute concerning a premium, you should contact the agent first. If you have a dispute concerning a claim, you should contact the company first. If the dispute is not resolved, you may contact the Texas Department of Insurance.

Attach This Notice To Your Policy:

This notice is for information only and does not become a part or condition of the attached document.

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Attach This Notice To Your Policy:

This notice is for information only and does not become a part or condition of the attached document.

JTR Constructors, Inc.

4718 Green Trail Dr.
Houston, TX. 77084

Phone (281) 550-7107
Fax (281) 859-2939

February 22, 2011

City of Tomball
501 James Street
Tomball, TX 77375

Re: City of Tomball - South WWTP Headworks Replacement

JTR Constructors, Inc. is pleased to provide the following references:

Name	Firm
Ronnie McKinney	LJA Engineering, Inc. 11821 East Freeway, Suite 400 Houston, TX 77029 (713) 450-1300
Bruce Bammel, P.E.	AECOM Technical Services 5757 Woodway Dr. Houston, TX 77057 (713) 780-4100
Tobin Synatschk, P.E.	Jones & Carter, Inc. 6335 Gulfton Dr. Suite 200 Houston, TX 77081 (713) 777-5337
Vernon Webb, P.E.	Jacobs Engineering Group, Inc. 5995 Rogerdale Rd. Houston, TX 77072 (832) 351-6000
Greg Lushbaugh, P.E.	Brown & Gay Engineers, Inc. 11490 Westheimer, Suite 700 Houston, TX 77077 (281) 558-8700

Jennifer Elms, P.E.

Edminster, Hinshaw Russ & Assoc.
10555 Westoffice Dr.
Houston, TX 77042
(713) 784-4500

John Davis, P.E.

Langford Engineering
1080 W. Sam Houston Pkwy.N, Ste. 200
Houston, TX 77043
(713) 461-3530

If you need additional information, please advise.

Sincerely,

Tony F. Gonzalez
Project Manager

J T R C O N S T R U C T O R S, I N C.

STATEMENT OF QUALIFICATIONS

Date of Contractor's Statement February 22, 2011

JTR Constructors, Inc. a Corporation organized and existing under the laws of the State of Texas.

Principal place of business: 4718 Green Trail
Houston, TX 77084

Telephone Number: (281) 550-7107
Facsimile Number: (281) 859-2939

Submitted to: City of Tomball

The signatory of this questionnaire guarantees the truth and accuracy of all statements and of all answers to interrogatories hereinafter made.

A. Financial Statement.

Attached.

B. List of contracts completed within the last five (5) years that were of similar or greater value to the Project to be performed.

Name of Project / Contact	Engineer Phone No.	Address
Cinco S.W. MUD #1 W.W.T.P. Bruce Baumel, P.E.	Turner Collie & Braden 713/267-3113	5757 Woodway Houston, Texas 77057
Harris County M.U.D. # 70 Jeff Stear, P.E.	Jones & Carter, Inc. 713/777-5337	6335 Gulfton, Suite 100 Houston, Texas 77081
Fort Bend Co. MUD #118 W.W.T.P. Vernon Webb	Carter & Burgess, Inc. 713/869-7900	55 Waugh Dr., Suite 800 Houston, Texas 77007

C. List of contracts that are currently underway but not yet complete.

Name of Project	Engineer/ Phone No.
Cinco SW MUD No. 1	AECOM Technical Services 713/780-4100
City of Richmond	James H. Suchma, P.E., Inc. 281/342-6836
New Caney Municipal Utility District	LJA Engineering & Surveying, Inc. 713/450-4629

D. List of contracts performed by the Bidder under which the bid bonds and/or the performance bonds have been forfeited.

None

E. Disclosure of any current or previous bankruptcy or financial reorganization.

N/A

F. List and brief description of previous lawsuits involving contracts performed by the Bidder.

N/A

H. Name of Project Manager and Superintendent that the Bidder plans to use if the Bidder is the successful bidder on the Project.

a. For administrative management? Tony F. Gonzalez

b. For construction superintendence? Jose A. Alvarenga

H. Wage rates to be paid to each labor classification expected to be used for the Project and effective at the time the Bid is submitted (Harris County wage rate schedule is preferred).

Harris County wage rate schedule will be used.

I. At least five (5) references from Owners of projects performed by Bidder under prior contracts. References must include the contact person's name, address, and phone number.

See Attached list

JTR Constructors, Inc.
(Name of Organization)

Tony F. Gonzalez - President

STATE OF Texas

COUNTY OF Harris

Tony F. Gonzalez being duly sworn deposes and says that he/she is **President**

of the above **JTR Constructors, Inc.**
(Name of Organization)

and that the answers to the foregoing questions and all statements therein contained are true and correct.

Sworn to before me this

22nd Day of February 20 11

Maria T. Huerta
(Notary Public)

My Commission Expires: 03-27-2014

MARIA T HUERTA
Notary Public, State of Texas
My Commission Expires
03-27-2014

PANORAMA
CONSTRUCTION-MANAGEMENT-TECHNOLOGY
822 DURHAM SUITE 100
HOUSTON, TEXAS 77007

Attn: Donna Hunter

City of Tomball
401 Market Street
Tomball Texas, 77375

4199712927271

FCM

FCM LG ENV
77019
Date of sale
03/01/11
02 1P00
09241312
APC
FC0037200 1048

USPS® FIRST-CLASS MA

0 lb. 9.

SHIP TO:

TOMBALL TX 77375

ZIP

(420) 77375

RECEIVED
MAR 02 2011
By

PANORAMA
Construction-Management-Technology
822 Durham Suite 100
Houston Texas 77007
Direct 713-863-8830
Fax 713-583-9260

Head of Public Works, City of Tomball

February 28, 2011

In care of:
Theresa Witt
401 Market Street
Houston Texas 77375

RE: SWWTP Headworks Replacement

To whom it may concern:

After serving in Iraq as a Combat Veteran in the US Army Cavalry and five years as a construction Project Executive, I formed a partnership between another Civil Engineer with a decade of oil/gas construction and a General Superintendent with over 30 years of municipal waterworks. Since 2009, the PANORAMA team has pulled from 48 years experience in Civil/Mechanical municipal works and has countless professional relationships with other highly-qualified vendors and subcontractors. Our portfolio of successful projects includes some of the most-demanding engineering firms and municipalities.

After no less than 3 site visit and pre-bid conferences related to the Headworks Replacement, we are absolutely confident that our proposal will provide the best value for the District. Additionally we have submitted the following:

- Current Qualifications, References, Financial Documents
- Timely and Complete Bid Proposal
- Bid Bonding for 100% Performance/Payment
- All necessary Insurance and Worker's Compensation
- Safety Policy & Quality Control Plan

Although we have received the Engineer's recommendation, our company still believes we can be qualified for the project. Every construction project is unique and different. The same Headworks Replacement at two different plants will have two completely different sets of plans/specification and subsequently two completely different budget requirements. What all projects do have in common is the need for good-cash flow, experienced-managers, timely-suppliers and qualified subcontractors; and we have it all.

The entire PANORAMA family of wives and children, as well as, vendor, supplier, and subcontractor are depending on this work and due process. We look forward to being at the next meeting to provide all required information and confidence necessary for the board to be properly considered and approve PANORAMA as the low-bidder.

All the best,

ABURUBIA

Bashar Aburubia
Owner/Manager

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PROJECT DOCUMENTS

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- Company & Banking Information
- Recent Project History
- Client, Vendor, Sub-Contractor References

Section Two: Team PANORAMA.....

- PANORAMA Project Personnel Listings
- PANORAMA Project Personnel Resumes

Section Three: Safety Program.....

- Safety Policy
- General HSE Requirements
- Construction Site Assessment

Section Four: Quality Control Plan.....

Section Five: References Documents.....

- Balance Sheet & Income Statement
- General Liability Certificate
- Worker's Compensation Certificate
- Commercial Auto Liability Certificate
- Umbrella Insurance

CONTRACTOR QUALIFICATIONS

PANORAMA
CONSTRUCTION-MANAGEMENT-TECHNOLOGY

COMPANY INFORMATION

Firm Name: PANORAMA dba of Desert Eagle, LLC.

Address: 822 Durham Suite 100
Houston Texas 77007

Number of Full-time Employees: 4
Number of Field Crew Employees: 7
Years of Cumulative Experience: 48 years
Years in Business; General Contractor: 6 years
Years in Business under current name: 2 years

Phone: 713-863-8830 **Fax:** 713-583-9260 **Cell:** 713-277-4286

Email: bashar@panoramadevelopmentgroup.com

Owner: Desert Eagle, LLC.
822 Durham Suite 100
Houston Texas 77007

Bashar Aburubia
1805 Stoney Brook No. 104
Houston Texas 77063

State Incorporated: Texas **Tax ID or EIN:** 27-1429480

BANKING/BONDING/SURETY INFORMATION

Bank Name: Wells Fargo **Account #:** 7963015198

Bank Address: 2824 Hillcroft
Houston Texas 77057
#3648

Bank Contact: Daniel Samuel
Contact Number: 832-251-5513

Insurance Agency: *Farmers Insurance*

Wael Magid Bugazia
11767 Katy FWY. Suite 620
Office: 281-531-9994

Insurance Agency: *BCH & Associates*

Dennis Descant
10055 West Gulf Bank Road
Office: 713-688-1500

Failed in business or declared bankruptcy? Never
Are the any legal proceeding pending? NONE
Any checks issued within the past six months returned due to insufficient funded: NONE
Been in claim with a Surety or denied bonding? Never
Failed to complete any work awarded to it? Never

PROJECT HISTORY

PANORAMA

CONSTRUCTION-MANAGEMENT-TECHNOLOGY

Project Name/Description	Engineer	Year	Budget	Status
Harris County M.U.D. 415 Remove & Replace Lift Station-Houston, Texas	***Dannenbaum***	2011	$69K	*On going*
Houston Independent School District Parking Facility Expansion-Houston, Texas	***Kalmans & Marshall***	2010	$115 K	Complete
Royalton Lift Station-City of Houston Remove & Replace Lift Station-Houston, Texas	***City of Houston***	2010	$538K	Complete
Gustine Lane Condos Renovations/Rehabilitation-Houston, Texas	***Momentum***	2010	$192 K	Complete
Monarch Cleaners New Boiler & Pump Rehabilitation-Houston, Texas	***Momentum***	2010	$228 K	Complete
Wood Forest Lift Station Remove & Replace Lift Station-Houston, Texas	***LJA***	2010	$236K	Complete
La Porte Architectural Gateway *Renovation/Addition* -La Porte, Texas	***SWBV***	2009	$712 K	Complete
Langham Creek Wastewater Treatment Plant Bar Screen & Pumps Improvements-Houston, Texas	***Jones & Carter***	2009	$685K	Complete
North Center *Storm Water Improvements* *Storm Water Detention & Pumps*- Houston, Texas	***Jones & Carter***	2009	$985 K	Complete
Grant Road Retail Center-PHASE II *New Construction*- Houston, Texas	***Dannenbaum***	2008	$670 K	Complete
Sweeny Independent School District *Storm Water Detention & Pumps*- Houston, Texas	***RAM Design***	2008	$235K	Complete
Grant Road Retail Center-PHASE I *New Construction*- Houston, Texas	***Dannenbaum***	2008	$525K	Complete

Company References

PANORAMA
CONSTRUCTION-MANAGEMENT-TECHNOLOGY

Client References

Name	Address	Phone	Contact
Jones & Carter	6335 Gulfton Suite 100 Houston, Texas 77081	713-777-5337	Richard Jones Construction Engineer
HoustonISD	4400 W. 18th Street Houston Texas 77092	713-515-5786	Mr. Herctor Moreno Project Coordinator
MAYATEX, LLC.	11810 Taylorcrest Dr. Houston Texas 77024	713-858-7937	Mr. Gary Rubia Development Manager
City of Houston	611 Walker, 17th Floor Houston, Texas 77002	713-376-4931	Robert Toliver Chief Inspector
Sweeny ISD	1310 N. Elm St. Sweeny, TX 77480	979-491-8013	Mr. Allen Schoppe Construction Administration

Vendor References

Name	Address	Phone/Fax	Contact
Metro-Tex Fabricators	5107 Brookglen Drive Houston Texas 77007	713-473-3900	Blake Locke Sales Manager
JDC Fluids	12811 Duncan RD #G Houston Texas 77066	281-586-7087	Jeff Williams Accounts Manager
Fergusons Pipe Supply	21250 Foster RD Houston Texas 77388	281-829-5454	Bradley Smith Accounts Manager
Newman Regency	12705 S. Kirkwood #140 Stafford Texas 77070	281-980-7448	Jeff Rebensch Sales Manager

Subcontractor References

Name	Address	Phone/Fax	Contact
Electrical Automation Controls	27331 Robinson RD Conroe Texas 77385	281-362-9600	Mike Weathers Project Manager
Banda Concrete	P.O. Box 51985 Houston Texas 77277	713-838-6431	Jesse Banda President
F & L Coatings	PO Box 1113 League City 77574	281-316-2203	Mike Czerwonka General Manager

PANORAMA

CONSTRUCTION-MANAGEMENT-TECHNOLOGY

Work In Progress Report

Februray 2011

Contract Description	Expected Completion	Contract Amount	Amount Billed to Date	Costs to Date	Expected Profit
HCMUD 415-Common Waterway Sect. 4 *Storm Water Improvements*	Mar-11	$69,300.00	$0.00	$0.00	$9,800.00
West Harris MUD No. 14 *Lift Station Rehabilitation*	Jul-11	$269,300.00	$0.00	$0.00	$39,600.00

PANORAMA

Construction-Management-Technology

PROJECT PERSONNEL LISTING

Office Address:	822 Durham Suite 100 Houston Texas 77007 Phone: (713) 863-8830 Fax: (713) 583-9260
Project Manager/Superintendent	Ken Tidwell ken@panoramadevelopmentgroup.com Direct: 832-267-3628
Quality Control/Project Manager	Talal Mansuri talal@panoramadevelopmentgroup.com Direct: 281-506-1769
Contracts Manager	Bashar Aburubia bashar@panoramadevelopmentgroup.com Direct: 713-277-4286

PANORAMA

PROJECT MANAGER/ SUPERINTENDENT

KENNETH TIDWELL

822 Durham Suite 100
Houston, Texas 77007
832-267-3628

2009-PRESENT

Full-time Project Manager and Superintendent for PANORAMA

- Project Estimating/bidding
- Contracts, Material, Equipment Procurement
- Field Reporting and Project documentation
- Punchlist Management & Project Closeout

EXPERIENCE

Excalibur Excavation, L.P., Spring, Texas - Jan 2008 to October 2010

Project Manager/Superintendent of Water & Wastewater Development

- Bid Proposals and Job Estimates
- Pre-Construction and Contracting
- Site Supervision and Field Reporting

Harbour Contractors, Inc., Houston, Texas- Jul 2006 to Dec 2009

Led and organized all civil and the electro mechanical working teams and resolved multitask construction issues in order to execute and complete projects within set schedules and allocated budgets.

- Superintendent-Chevron Phillips Chemical Plant, Baytown, Texas
- Rail Yard Construction
- Lift Stations and Water Treat Plants
- Underground Electrical and Fiber Optics
- Street Paving and Striping
- Prefab Buildings

Glacier Construction, Dickinson, Texas- Sep 2004 to Nov 2008

Managed and supervised all project stages including bidding, planning, procurement, execution, and subcontracting.

- Project Manager-Bayport Terminal
- Wastewater Treatment Rehabilitation
- Loading Docks and Pile Driving
- Plant Maintenance and Repairs
- Cleaning Chemical Spills

Project Manager/Superintendent- 1970-2004

- JALCO, Inc., Houston Texas
- Texas Sterling Construction, Houston Texas
- Turner Construction, Houston, Texas
- E.E. Reed, Austin Texas
- Mc Ginnes Brothers, Inc., Houston/Austin Texas
- R.E. Hable Construction, Corsicana, Texas

PANORAMA
PROJECT MANAGER/ SUPERINTENDENT

TALAL MANSURI
1410 Richmond Ave. Apt. #359
Houston, Texas 77006.
(281) 508 - 1769

2009-PRESENT

Full-time Project Manager and Superintendent for PANORAMA

- Project Estimating/bidding
- Contracts, Material, Equipment Procurement
- Field Reporting and Project documentation
- Punchlist Management & Project Closeout

EDUCATION

M. S. Civil Engineering-Construction & Project Management.
University of Houston, TX. May 2011
B. A. Civil Engineering.
Alfatah University-Tripoli, Libya. June 1999.

EXPERIENCE

SHELL Exploration & Production SEPLG, Drilling Department, Tripoli, Libya
Contract Holder Jan 2008 to Sep. 2008

Managed all civil preparation activities preceding exploration drilling activities including earthwork, civil work, and water well drilling. Contracts worth $30 million.

- Reduced civil preparation expenses for each exploration well by 15%
- Improved HSE performance of contractors from red category to yellow.

Petroleum & Industrial Realization Contractor PIRECO, Libya
Technical Coordinator & Project Manager Jul 2006 to Dec 2007

Managed and supervised all project stages including bidding, planning, procurement, execution, and subcontracting.

- Won 3 new contracts with different clients and completed all three projects with 20% profit without any delays in the project schedule. Projects totaled to a value of $25 M
- Managed construction of (3) 6" crude and water injection flow lines for a total of 8 miles between wellheads and collecting manifolds
- Constructed a water treatment plant in oil field
- Maintained elevated water tanks in oil Terminal
- Constructed crude oil storage tanks and tie-in connections of new oil wells.

Site Manager Sep 2004 to Jun 2006

Led and organized all civil and the electro mechanical working teams and resolved multitask construction issues in order to execute and complete projects within set schedules and allocated budgets.

- Executed projects in less than 80% of the scheduled time frame with limited resources, and with zero recordable incidents.
- Constructed 8 miles of GRE 16" sea waterline
- Constructed water injection system in an oil field
- Projects totaled a value of $20 M.

Bids Coordinator Sep 2003 to Aug 2004

Coordinated bidding with clients and ensured all of PIRECO's technical & commercial issues were evaluated and included in bids.

- Achieved qualification to bid on new contracts.
- Acquired two new construction contracts.

Site Civil Engineer May 2001 to Aug 2003.

Planned and supervised all civil work activities and performed all civil engineering inspections and tests related to the project that included the construction of a new oil field and 54 miles of 12" crude pipeline. Project value of $45 million.

- Completed all civil works within the project specs and budget.

C.D. Bissell Engineering Limited, Tripoli, Libya

Site Civil Engineer May 2000 to April 2001

Reviewed and supervised the performance of civil work activities, prepared all the site related reports and planning (daily, weekly, monthly progress reports), and performed all site civil engineering tests and inspections.

- Successfully executed $10 million project.

Software Skills:

Primavera Planner, AutoCAD, Microsoft Office suite (Word, Excel, Access, and PowerPoint)

LANGUAGES

English & Arabic, oral and written.

TRAINING

- Lifting and slinging training. 2001
- Fire Fighting & H_2S training. 2002
- Pipeline welding and wrapping control. 2003
- GRE (Glass reinforced epoxy) welding and supervising. 2005
- Primavera & Projects management control. 2006
- Logistic and Land transportation. 2008
- Safe Driving in Oil Fields and Petrochemical Facilities , Fire Fighting , Life support , First Aid , H_2S training 2008.
- Construction Safety and sustainable construction, 2009.
- Project management Control, 2009.
- Construction project management, 2010.

PANORAMA
PROJECT EXECUTIVE/CONTRACTS MANAGER

BASHAR ABURUBIA
1805 Stoney Brook No. 104
Houston, Texas 77063
713-277-4286
bashar@panoramadevelopmentgroup.com

2008-PRESENT

Owner/Manager for PANORAMA

- Bonding and Credit Procurement
- Company Protocols and Procedures
- Economic and Fiscal Forecasting

RAM Design/Build

April 2005-March 2008

Grand Harbor Medical Center in Katy, Texas

- Project manager on 18,300 SF of new shell construction including fit out for hair salon and donut shop
- Robust relations with local vendors and tradesman, rooted in timely and accurate project information

Shoppes on Dulles Avenue in Stafford, Texas

- Coordinated with architectural and engineering assets through city permit approval process
- Developed contracts with variety of AIA series documents for sitework, utilities, concrete and finishes

Bid Estimator/Scheduler

- Several formal bids on commercial new construction and renovation; conducting site walks, RFPs and final bid packet development
- Qualifying company for bidder lists with several other design and construction management firm

University of Houston

Graduation May 2007

- Construction Management Technology, B.S. Engineering Technology
- Coursework includes Engineering Mechanics, Construction Law, Safety, Estimating, Planning & Scheduling, Equipment Methods, Mechanical/Electrical Systems, Site Survey and Development
- Software used throughout includes MS Office Suite, MS Project and On-Screen Takeoff

Military Experience – U.S. Army Aviation

December 2001-May 2005 ***Honorable Discharge***

- Aviation Operations Specialist, 1st Cavalry Division, 4 Brigade Headquarters, Fort Hood, TX
- Combat service and supply logistics for record-breaking UH-60 Blackhawk battalion
- Tactical scheduling and communications throughout entire battle cycle
- Army Commendation Medal for Meritorious Service in Operation Iraqi Freedom II, Baghdad, Iraq March 2004-April 2005

Professional Texas Home Inspector Lic#8776

May 2005-Present

- Trained with industry leaders, Leonard-Hawes Dearborn Academy
- 320 hours- Texas Technical Correspondence Program /90 hours Residential Inspection class work
- Conducted over 40 Structural, Mechanical, and Electrical Inspections of single/multi-family homes
- Nuanced in descriptive technical language that limits negative legal exposure within IRC & IBC.

Contractor's Safety Plan

PANORAMA
CONSTRUCTION-MANAGEMENT-TECHNOLOGY

822 Durham Suite 100
Houston Texas 77007
Office 713-863-8830
Fax 713-583-9260

PANORAMA

CONSTRUCTION-MANAGEMENT-TECHNOLOGY

2011-Safety Policy

PANORAMA CONSTRUCTION is committed to providing a safe and healthy work environment for everyone involved in the construction process from employees and subcontractor. Consequently, no other factor is to like priority over safety and healthy on PANORAMA job sites. All employees at levels and all subcontractors are expected to work safely themselves and encourage their fellow workers to do so. All are expected to comply with applicable safety rules and regulations and to intervene when others break these rules.

PANORAMA provides employees with knowledge and equipment needed to work safely. Employees, in turn, are expected to apply their knowledge and use their equipment to do their job safely. Everybody should think safely at all time, and when in doubt, err on the side on safety.

Everyone working for PANORAMA, whether employees or sub contractors is responsible for Health and Safety. Each of us must do everything possible to work safely and prevent incidents involving injury, ill health and near misses to ourselves, our colleagues and anyone else who may be affected by our work activities.

PANORAMA also conducts its construction in a manner that is protective of the environment. Waste minimization and pollution prevention are key objectives of this policy. Environmental aspects of the Company's activities, products and services are periodically assessed and objectives and targets are established for reducing impacts to the environment.

PANORAMA

CONSTRUCTION-MANAGEMENT-TECHNOLOGY

General HSE Requirements

PANORAMA Safety Rules and Protective Regulations

(Must be read and signed by all individuals on the job site, provide Project Manager a copy of all signatures)

ALL OF OUR SAFETY RULES MUST BE OBEYED. FAILURE TO DO SO WILL RESULT IN STRICT DISCIPLINARY ACTION BEING TAKEN.

1. Eye protection will be worn when there are potentials of hazards from flying objects or particles, chemicals, arcing, glare, or dust.
2. Protective footwear shall be worn to protect from falling objects, chemicals, or stepping on sharp objects. Athletic or canvas-type shoes shall not be worn.
3. Protective gloves or clothing (proper PPE) shall be worn when required to protect against a hazard.
4. Harnesses shall be utilized for fall protection as required in OSHA Construction Safety Standards.
5. Keep your mind on your work at all times. No horseplay on the job. Injury or removal from the job site or both can be the result.
6. Precautions are necessary to prevent sunburn and to protect against burns from hot materials.
7. The use of illegal drugs or alcohol or being under the influence of the same on the project shall be cause for termination. Inform your supervisor if taking strong prescription drugs that warn against driving or using machinery.
8. Do not distract the attention of fellow workers. Do not engage in any act which would endanger another employee.
9. Sanitation facilities have been provided for your use. Defacing or damaging these facilities is forbidden.
10. A good job is a clean job, and a clean job is the start of a safe job. So keep your working area free from rubbish and debris.
11. Never work aloft if you are afraid to do so, if you are subject to dizzy spells, or if you are apt to be nervous or sick.
12. Never move an injured person unless it is absolutely necessary. Further injury may result. Keep the injured as comfortable as possible and utilize job site first-aid equipment until an ambulance arrives.
13. Know where firefighting equipment is located and be trained on how to use it.
14. Lift correctly - with legs, not the back. If the load is too heavy GET HELP. Stay fit. Control your weight. Do stretching exercises. Approximately twenty percent of all construction related injuries result from lifting materials.
15. Nobody but the operator shall be allowed to ride on equipment unless proper seating is provided.
16. Do not use power tools and equipment until you have been properly instructed in the safe work methods and become authorized to use them.
17. Be sure that all guards are in place. Do not remove, displace, damage, or destroy any safety device or safeguard furnished or provided for use on the job, nor interfere with the use thereof.
18. Do not enter an area which has been barricaded.
19. If you must work around power shovels, trucks, and dozers, make sure operators can always see you. Barricades are required for cranes.
20. Never oil, lubricate, or fuel equipment while it is running or in motion.
21. Defective ladders must be properly tagged and removed from service.
22. Keep ladder bases free of debris, hoses, wires, materials, etc.

23. Before servicing, repairing, or adjusting any powered tool or piece of equipment, disconnect it, lock out the source of power, and tag it out. Use the "four and one" rule when using a ladder. One foot of base for every four feet of height. Portable ladders in use shall be equipped with safety feet unless ladder is tied, blocked or otherwise secured. Step ladders shall not be used as a straight ladder Ladders must extend three feet above landing on roof for proper use.

24. The use of harnesses with safety lines when working from unprotected high places is mandatory. Always keep your line as tight as possible.
25. Never throw anything "overboard." Someone passing below may be seriously injured.
26. Know what emergency procedures have been established for your job site. (location of emergency phone, first aid kit, stretcher location, fire extinguisher locations, evacuation plan, etc.)
27. Never enter a manhole, well, shaft, tunnel or other confined space which could possibly have a non respirable atmosphere because of lack of oxygen, or presence of toxic or flammable gas, or has a possibility of engulfment by solids or liquids. Make certain a qualified person tests the confined area with an appropriate detector before entry, that the necessary safety equipment is worn. Standby person may be required to be stationed at the entrance.

I, _____agree with the above standards that have been set forth by CSM in accordance with General Safety Requirements.

_____ _____
(Signature) (Date)

CONSTRUCTION SITE HAZARDS ASSESSMENTS

The aim of these assessments is to identify the potential accidents/incidents scenarios, in order to assess the risks and identify prevention, protection and intervention measures.

The scenarios developed are essentially the following:

1. Falling into excavated pits and trenches.
2. Falling from ladders or elevated positions.
3. Crushing/asphyxiation due to collapse of excavations.
4. Being hit by falling objects.
5. Being crushed by plant equipment /vehicles.
6. Impact from improper manual lifting or failure to use appropriate lifting equipment.
7. Eye damage from grinding, welding, blasting and painting activities.
8. Being electrocuted by live electrical equipment.
9. Fire (from various sources).

1. Falling into excavated pits and trenches

Activity:

Site Work construction:

- Realization of trenches.
- Breeding (creation) of some pits in the camp for various purpose (sewage, waste,...)
- Building of a bounded area to receive discharged pipeline hydro test water.

Identification of potential hazard:

- Slippery surface near a trench side or on the bond of pit.
- Collapse of a trench side or pit side or tarpaulin.
- Jump to get over the trench.
- Though not paying attention during the work near a trench or pit side.
-

Assessment potentials of Hazards:

Risk (threat):

- Risks may lead to fall into excavated pit and trenches

Exposure:

- Personnel involved in the excavation of trenches or pits.
- Personnel involved in the pit control.

Escalation Factor:

- Victim alone
- No lifting equipment available.

Possible consequences/ corresponding damages:

- Minor injury in the most cases (pit or trench depth maximum <6ft)
- Major injury in the most cases (pit or trench depth > 6ft)

Control of Hazard/ Prevention measures:

- Obtain information about terrain conditions
- Remove all slippery surfaces.
- Forbid workers to jump over the trench.
- Always at least two (2) persons when working isolated in risky area.
- Pits in the camp covered by tarpaulin to be fenced off.

- Surrounding non-slippery shoes to be worn will be clear of materials and sharp object before stating work in the elevated places.

Recovery/Mitigation measures:

- First aid of casualty (first aiders, medic and doctor are in place).
- Call 911 immediately.
- Specific tool box, safety meeting.

3. **Crushing/asphyxiation due to collapse of excavation.**

Activity:

- Excavation work (trench, pit, cave....)
- Circulation on a pit or trench side.
- Work near fringe cave (sewage...)
- Work in side pit or trench
- Pumping rainwater from trench or pit.

Identification of potential hazard:

- Collapse of fringe of excavation (trench, cave, pit) and falling into excavation or while working inside excavation.
- Weak cave salving.

Assessment potentials of Hazards:
Risk (threat):

- Risk may lead, shrouding, crushing, asphyxiation when person(s) falling into excavation or while working in side.

Exposure:

- Personnel involved in the above activities (1 or 2 maximum).

Escalation Factor:

- No lifting equipment available.
- Personnel alone.
- Fall on sharp materials

Possible consequences/ corresponding damages:

- May lead to major injury.
-

Control of Hazard/ Prevention measures:

- Obtain information about terrain conditions.
- Don't move or work just in the fringe of trench pit or cave.
- Don't be alone for control cave, trench or pit.
- If trench depth exceeded 6 ft a proper trench safety and caving prevention MUST be used.

Recovery/Mitigation measures:

- First aid of casualty (first aiders, medic and doctor are in place).
- Call 911 immediately.
- Specific tool box, safety meeting.

4. **Being hit by falling objects.**

Activity:

- Working in the vicinity or at the foot of elevated positions.
- When work is being carried, or materiel is being manually, handled at height.
- When lifting is being carried over the side of work places during process facilities erection.

Identification of potential hazard:

- Abandonment at height work place of tools or objects, which could cause accidents.
- Using of hand tools not fixed to a light chain or to a small sling at height work place.
- Throwing or dropping tools or materials from height work place.
- Access under or in the vicinity of height work place is not effectively protected tools or materials.

Assessment potentials of Hazards:
Risk (threat):

- Falling objects hitting person(s) staying in the vicinity or under elevated position.

Exposure:

- Persons working under or in the vicinity of height work place.

Escalation Factor:

- Person staying in the vicinity of place where there is risk of falling objects does not wear helmet and safety shoes.
- Falling of heavy object.

Possible consequences/ corresponding damages:

- Major injury.

Control of Hazard/ Prevention measures:

- Steps will be taken to prevent any person from being struck by any falling or displaces tools, material or any objects.
- Where necessary (work in the vicinity or under of height work place) overhead protection in the form of boarding, nets or other measures will be provided.
- Hound tools will be fixed to a light chain or to a small sling at height work place.
- Tools or objects, which could cause accident if they were to fall, will be removed after use.
- Personnel move or work in the vicinity of height work place must be worn helmet, safety shoes safety and the adequate PPE.

Recovery/Mitigation measures:

- First aid for casualty(s) first aiders, in place)
- Call 911 immediately.
- Toolbox and safety meeting about hazard scenario and accident causes and consequences.
- Applying control of hazard/prevention measures before to start again work at height place.

5. **Being crushed by plant equipment/vehicles.**

ACTIVITY:

- Plant equipment erection, assembly, connecting:
- Use of the flowing devices:
    1. Crane (lifting, hoisting).
    2. Bulldozer or Excavator (earth work, seeking up various pit, walls...)

3. Truck (transportation materiel).

IDENTIFICATION OF POTENTIAL HAZARD:

- While erection, assembly, connecting plant equipment:
- Collapse of equipment resulting of:
  - I. Rupture of a sling or other lifting gear
  - II. Collapse of crane weak ground
  - III. Collision of lifted equipment with an obstacle
- While maneuvering vehicles:
  - I. Low visibility (night, log, dust)
  - II. Vehicle dysfunction
  - III. Speed inappropriate for terrain conditions
  - IV. Diver error
  - V. Lack of marshalling
  - VI. Non respect of safety distance
  - VII. Slipping area
  - VIII. Obstacle non observed

ASSESSMENT POTENTEALS OF HAZARDS:

Risk (threat):

- Crushed person(s)

Exposure:

- One man in charge of crane maneuvering and two for sling or position the load
- Usually, two people are involved: the driver and the person in charge of marshalling

Escalation Factor:

- Person being crushed by vehicle against obstacle

Possible consequences/ corresponding damages:

- Major injury /fatality.

CONTROL OF HAZARD/ PREVENTION MEASURES:

- Vehicle has to be checked daily
- In reduced space, vehicle has to be marshaled (guided)
- Vehicles have to be equipped with audible reverse alarm
- Maneuvering area has to be adequately illuminated
- No body thread way between vehicle and obstacle
- Helmet and safety boots have to be worn by those involved with crane/load manoeuvring
- Stabilization legs of crane have to be deployed and put to stand on firm ground (use large wooden pads in case of soft ground)
- Lifting and hoisting equipment have to be regularly inspected and maintained
- Whenever possible, use lifting straps instead of slings
- Lifting hook to have a lock, shackles have to be correctly tightened
- Crane operated by authorized personnel only
- Lifting area has to be clear of obstacle. If impossible, one look-out has to watch movements
- If container in poor conditions, lifting is forbidden. Empty container instead
- Nobody under load or pulling load or where the lead is to be placed.

RECOVERY/MITIGATION MEASURES:

- First aid for casualties.
- Call 911 immediately.

- Tool box and safety meeting about accident.

6. **Impact from improper manual lifting Or Failure to use appropriate lifting equipment.**

ACTIVITY:

- Handling material, equipments, tools or products containers.

IDENTIFICATION OF POTENTIAL HAZARD:

- Manual lifting without apply the basic principles of lifting or using appropriate lifting equipment.
- Manual lifting of object and materials, which are difficult to lift.
- Handling or moving materials, which have sharp edges, protruding nail points, slivers or other hazard that may cause injury.
- Obstructed, slippery or obscure view way or area having slipping or tripping hazard.
- Slippery object that may fall on feet.
- Improper foot wear
- Inadequate lifting position not observation of the basic principles of manual handling (lifting).

ASSESSMENT POTENTEALS OF HAZARDS:
Risk (threat):

- May load to have back problems, back pain, lumbago...
- Materiel may fall on feet.

Exposure:

- One man (either the handler or a person passing by)

Escalation Factor:

- Hazardous materials
- Sharp edges on object / person not wearing PPE
- Cumbersome shape of object
- Non-uniform weight distribution of object
- Weak back of the handler
- Manual lifting at height (truck, scaffold, working plate form, ladders...)

Possible consequences/ corresponding damages:

- Both muscular and skeletal injuries can result from improper manual lifting.
- Crushing feet (falling object on feet)
- Hand injury.

CONTROL OF HAZARD/ PREVENTION MEASURES:

- Training on the basic principles of the correct lifting and handling.
- Do not lift any object which is difficult to lift or which has sharp edges, protruding nail points, slivers or other hazards.
- Inspect the area and routes prior to manually transferring materials. Ensure routes and storage areas are unobstructed and free from slipping and tripping hazards.
- Sharp, slippery materials to be handled with appropriate gloves or if there is risk, use appropriate lifting equipment.
- Correct lifting position to be always assumed even for small loads.
- Load handled by hand should be generally small, large load or heavy load to be handled by using appropriate lifting equipment or by 2 persons.

RECOVERY/MITIGATION MEASURES:

- First aid for casualties.
- Call 911 immediately.
- Tool box and safety meeting about accident.

7. **Eye damage from grinding, welding, blasting and painting activities.**

ACTIVITY:

- Bench grinder operation
- Hand grinder
- Electrical welding activities
- Oxy-gas culling
- Blasting
- Spray painting

IDENTIFICATION OF POTENTIAL HAZARD:

- Flying sparks, particles or splashes
- Abrasive wheel not properly mounted on its spindle
- Abrasive wheel not equipped with protection hoods
- Abrasive wheel run at a speed exceeding the maximum speed indicated on them. may lead to fracture of the abrasive wheel.
- Flying fragments of sheath
- Flying slag when removed by hammer or chisels from welds
- Intense light from welding

ASSESSMENT POTENTEALS OF HAZARDS:
Risk (threat):

- Flying of particles, sparks, sands at eyes of involved workers or persons in the vicinity.
- Personnel in the vicinity exposed to harmful radiations.
- Presence of intensive light from welding
- Flash backs from arc welders

Exposure:

- Daily, one person uses the equipment and everybody can be in the vicinity.

Escalation Factor:

- PPE screen, goggles or other means not used.
- Equipment used by unaware person

Possible consequences/ corresponding damages:

- Eye damage generally minor injury.
- That may be major injury if eye is severe burnt by hot metal splashes

CONTROL OF HAZARD/ PREVENTION MEASURES:

- Appropriate eyes protective against flying particles; sand and harmful radiation will be provided to involved personnel.
- Personnel involved will be aware about PPE.
- Abrasive wheels should be equipped with protection hoods.
- Abrasive wheels should be properly mounted on its spindle.
- Abrasive wheels should not be run at a speed exceeding the maxim safe speed indicates on them.
- Where necessary vent equipment to be installed.

- Welding curtains to be erected around things to be welded when it's necessary.

RECOVERY/MITIGATION MEASURES:

- First aid for casualties.
- Call 911 immediately.
- Tool box and safety meeting about accident.

8. **Being electrocuted by live electrical equipment.**

ACTIVITY:

- Use of mobile and portable electrical tools and appliance
- Electrical arc welding equipment
- Electrical Equipment Inspection, Maintenance, Repair...
- Use temporary electrical lighting installations.

IDENTIFICATION OF POTENTIAL HAZARD:

- Equipment failure
- Safety device failure
- Lack of information about equipment
- By pass safety devices
- Set up temporary system
- Alter the setting of the setting breakers or immobilize them.
- Replace calibrate fuses by other fuses or temporary conductors.
- Use water, which conduct electricity on live equipment during fire.
- Electrical system not regularly inspected and maintained.
- Transformer electrical cabin haven't the prescribed safety equipment.
- Carried out operation on an electrical system without use P.P.E and special safety gear

ASSESSMENT POTENTEALS OF HAZARDS:
Risk (threat):

- Use equipment under abnormal conditions.
- Carry out work on live circuit elements dispensed of suitable protection or failing.
- Excessive contact voltage.
- Carried out operation (repair work) on an electrical system without adequate protection (such as padlocking and tagging). The current may be switch on
- without order of a competent person.
- Electrical accidental contact
- Electrical shock.

Exposure:
Every body in contact with electrical equipment

Escalation Factor:

- Circuit breaker falling
- Working at height
- Victim alone (no body in the vicinity)
- Fall on sharp object.
- Panicked rush to help victim.
- Inadequate rescue/help equipment

Possible consequences/ corresponding damages:

- *Major injury.*

- Fatality.

CONTROL OF HAZARD/ PREVENTION MEASURES:

- All parts of the electrical installation, electrical tools and equipment to be designed, installed, used and maintained as to prevent electrical shock and fire.
- Steps to be taken to prevent damage to electrical conductor or apparatus from construction operations and from movement of cranes and then loads.
- Electricians are supplied with sufficient adequate tools and personnel protective equipment such a rubber gloves.
- Safety devices, electrical tools and equipment to be regularly maintained qualified personnel which will take appropriate precautions.
- Ensure suitable earthling connection.

RECOVERY/MITIGATION MEASURES:

- Help victim who has been in contact with the conductor observing suitable instructions.
- First aid for casualties.
- Call 911 immediately.
- Tool box and safety meeting about accident.

9. **Fire (from various sources).**

ACTIVITY:

- Hot work (welding, grinding, cutting) in work site in vicinity of flammable materials on substances
- Hot work in workshops.
- Use electrical equipment, tools.
- Battery charging

IDENTIFICATION OF POTENTIAL HAZARD:

- Welding o r cutting operation on containers, which there are explosive or flammable materials substances.
- Welding grinding, flame welding or cutting operations can be a source of fire (e.g. heat, sparks slag or hot metal).
- Source of fire (e.g. short circuit, conduction heating).
- Not sufficient electrical continuity
- Electrical conductors and apparatus exposed to the flammable or explosive atmospheres.
- Leak of gas in presence of source of ignition
- Smoking in forbidden area or put cigarette on wastebasket or waste.
- Stored hydrocarbon can catch fire when heated in the event fire.

ASSESSMENT POTENTEALS OF HAZARDS:
Risk (threat):

- Fire on wastebasket or waste container Fire from being started by ignition electrical spark (flash) or heating in presence of flammable material
- Static electricity in explosive atmosphere leads to explosion and fire.
- Fire from being started by sparks slag or hat metal coming into contact with flammable materials solid, liquid, gas.

Exposure:

- Permanent, everywhere:
  - Work shop
  - Hot work area.

- Hydrocarbon storage.
- Flammable substance storage.
- Vehicles.
- Camp
- Office

Escalation Factor:

- Heating device left unattended (e.g. welding set)
- Flammable vapor or substance released in working area.
- Personnel clothing stained with grease, oil and other flammable material.
- Possible consequences/ corresponding damages:
  - Minor injury .
  - Major injury in extreme case.
  - Damage to equipment.

CONTROL OF HAZARD/ PREVENTION MEASURES:

Measures to be taken to prevent the danger of fire these measures include:

- Scrap, waste and rubbish to be not allowed to accumulate in work places or access.
- Flammable/explosive substance to be removal from the hot work area before stating hot work.
- Care to be taken that hose line for oxygen and for acetylene do not became kinked or tangled, stepped on run over or otherwise damage.
- Welding or cutting operations on containers in which there are explosive or flammable substances, is strictly forbidden.
- Welders and their assistants should wear clothing that is free from grease, oil and other flammable material.
- Hydrocarbon and flammable /explosive substances to be away from working area and camp.
- Diesel /hydrocarbon tank(s) to be surrounded by a bund.
- Flammable explosive substances to be labeled to indicate their contents.
- Daily toolbox meeting.
- Weekly safety meeting.
- All pipe, hose line to be have sufficient electrical continuity and efficiently connected to earth to avoid static electricity flash in than explosive atmosphere.
- All part of the electrical installation, electrical tools and equipment to be designed installed, connected, used and maintained a so prevent electrical short circuit, conductor heating.
- It is forbidden to smoke or make fire in any hazardous area (flammable or explosive vapor or gas). This ban is indicated by "No smoking" signs.
- Electric arc-welding equipment not to be left unattended with the current switched on.

RECOVERY/MITIGATION MEASURES:

- Fight fire according to fire fighting procedures as defined in the E.R.P.
- Places where hot work is done or where fire risk exists are provided with suitable and sufficient fire extinguishing equipment and fire blanket.
- All supervisor and sufficient number of workers trained in the use of fire extinguishing equipment.
- First aid for casualties.
- Call 911 immediately.
- Specific toolbox and safety meeting.

Project Documents &

Contractor Qualifications

West Harris County MUD No. 41
Grinder Pump Station & Force Main

PANORAMA
CONSTRUCTION-MANAGEMENT-TECHNOLOGY

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LIST OF APPENDICES

APPENDIX
CONCEPTUAL PROJECT ORGANIZATIONAL CHART A-1
RESUMES OF KEY PERSONNEL A-2

1. INTRODUCTION

This Construction Quality Control Plan (CQCP) will be implemented to ensure remedial and construction procedures are performed in compliance with the plans and specifications under this contract. This CQCP will provide a means to maintain effective quality control at the Grinder Pump Station (WHCMUD 41). The quality control measures as presented herein include quality control organization; methods of performing, documenting, and enforcing quality control operations of both the primary Contractor and their subcontractors (including inspection and testing); inspections to be performed; and protocol describing corrective actions.

Overall management of the CQCP will be the responsibility of the Contractor's Quality Control Manager (QCM). The QCM will have the authority to act in all construction quality control CQC matters and will be responsible for ensuring that all materials and work comply with the contract specifications. All inspection and testing firms will be at the disposal of the QCM to ensure that all aspects of work are compliant with the contract. The QCM will report any deviations from the CQCP independently to the On-site Project Manager. The resume of the Contractor's designated QCM will be submitted for approval prior to mobilization to the Site.

2. SITE DESCRIPTION

The project site is adjacent to both Telge Road and West Road; as well as on the edge of a residential neighborhood. Ariel power cables run along the West Road frontage side of the project site at an elevation of 18 feet. Traffic control and schedule deliveries will be crucial throughout construction.

3. PROJECT ORGANIZATION

The Contractor's key personnel assigned to this project should possess a broad range of remedial action experience and skills. All should have experience dealing with the handling of contaminated wastes and should be familiar with requirements of day-to-day work under this contract.

The Contractor's proposed project organization for this project and the resumes of key personnel, along with their job titles, should be submitted for review and approval. A conceptual project Organizational Chart is included in Appendix A.

The functional responsibilities of key technical personnel are summarized as follows.

3.1 HOME OFFICE PERSONNEL

PROJECT EXECUTIVE

The Contractor's Project Executive will ultimately be responsible for the project's success. He will provide the required resources to ensure that the project is successfully

executed. He will be kept informed of the project's progress and maintain that the project is meeting its goals. The Project Executive will resolve problems that cannot be resolved by the Project Manager or Corporate Project Superintendent.

3.2 FIELD PERSONNEL

PROJECT MANAGER & QUALITY CONTROL MANAGER (QCM)

The Contractor's Project Manager, will be the primary contact person at the site with whom R.G. Miller's Site inspector, will interact with on a daily basis under this contract.

The Contractor's On-site Project Manager will ensure that:

- Appropriate resources are allocated to the project and balanced to ensure best value to SBISD.
- All cost tracking and reporting is carried out in a manner compliant with R.G. Miller's contract requirements.
- All tasks are conducted in accordance with the project specifications. The Contractor's field personnel should rely on home office support throughout the course of the Project.
- The Project Manager will be present on the jobsite, to ensure that the project is progressing as scheduled.
- The Project Manager is responsible for implementation and support of the Contractor's CQCP and will oversee all aspects of work under this contract for remediation at the site; including all procurements.
- Performing and documenting field inspections.
- Preparing daily Quality Control Reports.
- Scheduling, reviewing, certifying, and managing project submittals.
- Maintaining the Submittal Register.
- Providing coordination of required quality control testing, reviewing results, and submittals.
- Coordinating, documenting, and tracking preparatory, initial, and follow-up inspections.
- Tracking construction deficiencies and ensuring timely corrective action.
- Maintenance of as-built drawings.

SUPERINTENDENT & SITE SAFETY OFFICER

The project Superintendent will be responsible for supervising all field activities. His duties include supervision of the craft labor (equipment operators, truck drivers, and laborers), technical staff (survey crew), and all subcontractors. The designated Superintendent is also responsible for the maintenance of all on-site construction equipment.

4. QUALITY CONTROL METHODS

The CQCP will be implemented in order to ensure compliance with the specifications for remedial action construction as detailed in the contract specifications. The basis of the CQCP is nationally recognized standards published by the American Society for Testing and Materials (ASTM) and the Project Specifications. In addition, procedures utilized within the CQCP should reflect the experience gained by the prime Contractor in completing construction projects similar to the WHCMUD No. 41 project.

Quality control measures will extend to field sampling procedures; staffing; types of material and equipment to be used; and methods of performing, documenting, and enforcing quality control operations of both the Contractor and subcontractors (including inspection and testing). As previously stated, maintenance of the CQCP will be the responsibility of the Project Manager/QCM. They will be responsible for ensuring that all materials and work comply with the contract specifications.

The QCM may have a field engineer at his disposal to assist him with the on-site inspections. Testing firms will be at the disposal of the QCM to ensure contract compliance in all aspects of work. All reports from testing firms will be forwarded to the QCM for his review and approval.

4.1 IMPLEMENTATION

The QCM will be responsible for implementing the CQC Plan by ensuring that quality materials and supplies are provided for the proposed project, and that good workmanship is provided in all aspects of this contract. The Project Manager/QCM will report directly to the Project Executive and will complete daily site inspections to ensure compliance with the quality control specifications.

Daily reports will be completed listing all field testing and sampling activities. These reports will be submitted to the R.G. Miller representative on a daily basis. The QCM will be responsible for ensuring that all materials and work comply with the contract plans and specifications, and that all performance standards are met.

It is anticipated that the R.G. Miller representative and the Contractor's QCM will meet frequently in order to forecast and/or prevent any potential problems from arising. An on-site quality control meeting will be conducted on a weekly basis as part of the weekly progress meeting in order to review performance during the previous one-week period, and prepare for the upcoming two-week period. It is anticipated that the Contractor's Project Executive, Project Manager and the R.G. Miller representatives will attend this meeting.

4.2 DOCUMENTING

To ensure that all construction and remedial activities comply with the project specifications, the Project Manager/QCM will complete, in conjunction with the subcontractors, three phases of site inspections for each feature of work.

Preparatory inspections will be performed prior to beginning work on any definable feature of the project and will include:

PHASE I-Daily Work Reviews

- Review of submittal requirements and all other Contract requirements with the performance of the work;
- Check to assure that provisions have been made to provide required field quality control testing;
- Examine the work area to ascertain that all preliminary work has been completed;
- Verify all field dimensions and advise R.G. Miller of any discrepancies;
- Perform a physical examination of materials and equipment to assure that they conform to approved shop drawings or submittal data and that all required materials and/or equipment are on hand and comply with the Contract requirements.

PHASE II - INITIAL INSPECTIONS

- Initial phase inspections will be performed as soon as a representative portion of the particular feature of work has been accomplished. Initial inspections include, but are not limited to, examination of the quality of workmanship; review of control testing for compliance with control requirements; and identification of defective or damaged materials, omissions, and dimensional requirements.
- The initial phase inspection is the time to discuss and agree on the required level of quality associated with a given work activity. Any discrepancies relative to work quality should be addressed at this time.

PHASE III - FOLLOW-UP INSPECTIONS

- Follow-up inspections will be performed daily as work progresses to ensure continuing compliance with contract requirements, including control testing, until completion of the particular feature of work.
- Final follow-up inspections will be conducted and deficiencies corrected prior to beginning new work.
- The QCM will notify R.G. Miller at least 24 hours in advance of any inspections. Notification and meeting minutes of all inspections will be recorded in the Daily Quality Control Report.

6. FIELD TESTING PROCEDURES

The Contractor will conduct field-testing to verify that control measures are adequate to provide a product that conforms to contract requirements. Field testing will be conducted under the auspices of the QCM and he or his designee shall:

- Arrange for, or conduct, field testing in accordance with applicable test parameters.
- Verify that facilities and testing equipment are available and comply with testing standards and ensure that testing facilities are approved and are validated.
- Check test equipment calibration data against certified standards.
- Verify that all tests are documented and submitted as part of quality control system reporting.
- Review all test documentation prior to submittals.

7. SUBMITTALS

The QCM will follow standard procedures concerning submittals, including the use of any R.G. Miller form. Each submittal form may contain more than one submittal specific to that specification section. A submittal register listing major submittals has been prepared by R.G. Miller. This register will be prepared in conjunction with the anticipated progress schedule.

The QCM will be responsible for the review and approval of submittals prior to their submittal to R.G. Miller representative. This includes reviews of materials and suppliers' catalog cuts, as well as subcontractor submittals. The QCM will review the submittal for completeness and compliance with the contract specifications. Variations to a submittal will be noted on the Submittal form. The QCM will actively participate during procurement activities to ensure purchase orders and subcontracts comply with the contract.

8. DOCUMENTATION

All testing results will be recorded on the daily quality control report. Any concerns or deviations from the required material specifications and the actions taken to correct the problems will be noted on the report. Information recorded on the daily quality control report will include:

- Definable features of work that was addressed.
- Description of trades working on the project.
- Numbers of personnel.
- Weather conditions.
- Types and numbers of tests performed.
- Results of testing.
- Nature of defects or cause for rejection.
- Proposed corrective action(s).
- Corrective action taken and date.

The Contractor will be responsible for ensuring total compliance of field work to the project specifications. Should modifications or revisions to the specifications become necessary, the Contractor will make the request, in writing, to R.G. Miller. Approval from R.G. Miller must be received prior to allowing the modifications or revisions to be made in the field. The Project Manager/QCM will be informed of and record all such requests in his daily log and on the daily quality control report.

10. DEFINABLE FEATURES OFWORK

Listed below are the general categories and types of work that will be performed under this contract. These items, known as Definable Features of Work, have been grouped into the various categories in which work will be performed, and correlate to measurement and payment. Suitable quality control methods and procedures will be utilized in order to ensure that all work is performed to the standards and quality required by the specifications.

The following are the definable features of work that will be performed under this contract:

- Pre-Construction Preparation Activities
- Mobilization
- Site Preparation
- Clearing and Grubbing
- Demolition and Removal of Above Ground Items
- Excavation of Impacted Fill Material
- Transportation and Disposal of Impacted Fill Material
- Backfill/Utility Replacement
- Restoration
- Demobilization

DESERT EAGLE, LLC.

BALANCE SHEET-Accrual Basis

As of December 31, 2010

ASSETS

Current Assets		
Cash in Bank	$186,987.27	
Total		$186,987.27
Accounts Receivable	$69,525.30	
Total		$69,525.30
Other Current Assets		
Work in Progress	$11,561.23	
Bid Payments	$385.00	
Notes Receivable-Bashar	$5,000.00	
Total		$16,946.23
Total Current Asset		$273,458.80
Fixed Assets		
Furniture & Equipment	$14,500.00	
Construction Equipment	$9,200.00	
Accumulated Depreciation	-$2,115.00	
Total		$21,585.00
Total Fixed Assets		$21,585.00
TOTAL ASSESTS		**$295,043.80**

LIABILITES & EQUITY

Liabilities		
Accounts Payable	$43,754.43	
Total		$43,754.43
Credit Cards		
Wells Fargo-Business	$412.32	
Total		$412.32
Other Current Liabilities		
Payroll Liabilities	$2,872.15	
Total		$2,872.15
Total Liabilities		$47,038.90
Equity		
Retained Earnings	$28,562.47	
Net Income	$219,442.43	
Total Equity		$248,004.90
TOTAL LIABILITES & EQUITY		**$295,043.80**

DESERT EAGLE, LLC.

PROFIT & LOSS-Accrual Basis

As of Decemebr 31, 2010

INCOME/EXPENSES

	JAN '10-Dec '10	% of Income
Income		
Construction Services	$1,396,233.52	98.42%
Other	$22,350.00	1.58%
Total	$1,418,583.52	100.00%
Costs of Goods Sold		
Cost of Goods Sold	$905,053.23	63.80%
Other Expenses-Misc.	$1,432.25	0.10%
Total	$906,485.48	63.90%
Gross Profit	$512,098.04	36.10%

EXPENSES

Advertising	$345.63	0.02%
Auto Repair	$1,714.00	0.12%
Bank Services	$218.45	0.02%
Commissions	$7,200.00	0.51%
Contract Labor	$95,600.00	6.74%
Continuing Education	$229.00	0.02%
Depreciation Expense	$321.85	0.02%
Due & Subscriptions	$1,895.00	0.13%
Equipment Rentals	$56,895.30	4.01%
FICA-Medicare	$832.22	0.06%
FICA-Social Security	$942.65	0.07%
Franchise Tax	$2,550.00	0.18%
Insurance	$4,896.32	0.35%
Legal & Accounting	$865.00	0.06%
Meals & Entertainment	$369.34	0.03%
Miscellaneous	$271.85	0.02%
Printing & Reprographics	$658.65	0.03%
Office Expenses	$365.85	0.03%
Salaries	$29,829.68	2.10%
Payroll Expenses	$291.92	0.02%
Telephone & Internet	$5,871.53	0.41%
Rent & Utilities	$4,890.00	0.34%
Total Expenses	$217,054.24	15.30%
NET INCOME	**$295,043.80**	**20.80%**

Commercial Certificate of Insurance

FARMERS

Agency Name & Address
- WAEL M. BUGAZIA
- 11767 KATY FWY STE. 620
- HOUSTON, TX 77079
- (281)531-9994

Issue Date (MM/DD/YY) 02/07/11

This certificate is issued as a matter of information only and confers no rights upon the certificate holder. This certificate does not amend, extend or alter the coverage afforded by the policies shown below.

St. 19 Dist. 25 Agent 306

Insured Name & Address
- DESERT EAGLE LLC
- DBA PANORAMA
- 822 DURHAM STE. 100
- HOUSTON, TX 77007

Companies Providing Coverage:

Company Letter A Truck Insurance Exchange
Company Letter B Farmers Insurance Exchange
Company Letter C Mid-Century Insurance Company
Company Letter D UNITED SPECIALTY INSURANCE

Coverages

This is to certify that the policies of insurance listed below have been issued to the insured named above for the policy period indicated. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this certificate may be issued or may pertain, the insurance afforded by the policies described herein is subject to all the terms, exclusions and conditions of such policies. Limits shown may have been reduced by paid claims.

Co. Ltr.		Type of Insurance	Policy Number	Policy Effective Date (MM/DD/YY)	Policy Expiration Date (MM/DD/YY)	Policy Limits	
D	X	General Liability	NS1205997	05/07/10	05/07/11	General Aggregate	$ 2,000,000
	X	Commercial General Liability				Products-Comp/OPS Aggregate	$ 2,000,000
		- Occurrence Version				Personal & Advertising Injury	$ 2,000,000
		Contractual - Incidental Only				Each Occurrence	$ 2,000,000
		Owners & Contractors Prot.				Fire Damage (Any one fire)	$ 2,000,000
						Medical Expense (Any one person)	$ 5,000
B	X	Automobile Liability	604854724	10/06/10	10/06/11	Combined Single Limit	$ 1,000,000
	X	All Owned Commercial Autos				Bodily Injury (Per person)	$ 1,000,000
	X	Scheduled Autos				Bodily Injury (Per accident)	$ 1,000,000
	X	Hired Autos				Property Damage	$ 1,000,000
	X	Non-Owned Autos				Garage Aggregate	$
		Garage Liability					
C	X	Umbrella Liability	604985724	01/25/11	01/25/12	Limit	$ 1,000,000
A	X	Workers' Compensation and Employers' Liability	A07446389	10/06/10	10/06/11	Statutory	
						Each Accident	$ 1,000,000
						Disease - Each Employee	$ 1,000,000
						Disease - Policy Limit	$ 1,000,000

Description of Operations/Vehicles/Restrictions/Special items:

ENDORSEMENT - (WAIVER OF SUBROGATION APPLIES IN THE FAVOR OF THE CERTIFICATE HOLDER AND ADDITIONAL INSURED)

Certificate Holder

Name & Address

Cancellation

Should any of the above described policies be cancelled before the expiration date thereof, the issuing company will endeavor to mail 30 days written notice to the certificate holder named to the left, but failure to mail such notice shall impose no obligation or liability of any kind upon the company, its agents or representatives.

Authorized Representative

56-2492 4-94

Copy Distribution: Service Center Copy and Agent's Copy

H-01

Office of the Secretary of State
Corporations Section
P.O. Box 13697
Austin, Texas 78711-3697
(Form 503)

Filed in the Office of the
Secretary of State of Texas
Filing #: 801258730 9/27/2010
Document #: 331310430005
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ASSUMED NAME CERTIFICATE
FOR FILING WITH THE SECRETARY OF STATE

1. The assumed name under which the business or professional service is or is to be conducted or rendered is:

PANORAMA

2. The name of the entity as stated in its certificate of formation, application for registration, or comparable document is:

Desert Eagle, LLC.

3. The state, country, or other jurisdiction under the laws of which it was incorporated, organized or associated is **TEXAS** and the address of its registered or similar office in that jurisdiction is:
822 Durham Suite 100, Houston, TX, USA 77007

4. The period, not to exceed 10 years, during which the assumed name will be used is : **10 year(s)**

5. The entity is a : **Domestic Limited Liability Company (LLC)**

6. The entity's principal office address in Texas is:

822 Durham Suite 100, Houston, TX, USA 77007

7. The entity is not organized under the laws of Texas and is not required by law to maintain a registered agent and registered office in Texas. Its office address outside the state is:

8. The county or counties where business or professional services are being or are to be conducted or rendered under such assumed name are:

ALL COUNTIES

9. The undersigned, if acting in the capacity of an attorney-in-fact of the entity, certifies that the entity has duly authorized the attorney-in-fact in writing to execute this document. The undersigned signs this document subject to the penalties imposed by law for the submission of a materially false or fraudulent instrument.

Desert Eagle, LLC.

Name of the entity

By: **Bashar Aburubia**

Signature of officer, general partner, manager, representative or attorney-in-fact of the entity

FILING OFFICE COPY

Secretary of State
P.O. Box 13697
Austin, TX 78711-3697
FAX: 512/463-5709

Filing Fee: $300

Certificate of Formation
Limited Liability Company

Filed in the Office of the
Secretary of State of Texas
Filing #: 801258730 04/21/2010
Document #: 304434020003
Image Generated Electronically
for Web Filing

Article 1 - Entity Name and Type

The filing entity being formed is a limited liability company. The name of the entity is:

Desert Eagle, LLC.

Article 2 – Registered Agent and Registered Office

☐ A. The initial registered agent is an organization (cannot be company named above) by the name of:

OR

☑ B. The initial registered agent is an individual resident of the state whose name is set forth below:

Name:
Bashar Aburubia

C. The business address of the registered agent and the registered office address is:

Street Address:
822 Durham Suite 100 Houston TX 77007

Consent of Registered Agent

☐ A. A copy of the consent of registered agent is attached.

OR

☑ B. The consent of the registered agent is maintained by the entity.

Article 3 - Governing Authority

☑ A. The limited liability company is to be managed by managers.

OR

☐ B. The limited liability company will not have managers. Management of the company is reserved to the members.

The names and addresses of the governing persons are set forth below:

Managing Member 1: **Bashar Aburubia** Title: **Managing Member**

Address: **822 Durham Suite 100 Houston TX, USA 77007**

Article 4 - Purpose

The purpose for which the company is organized is for the transaction of any and all lawful business for which limited liability companies may be organized under the Texas Business Organizations Code.

Supplemental Provisions / Information

[The attached addendum, if any, is incorporated herein by reference.]

Organizer

The name and address of the organizer are set forth below.

Bashar Aburubia **1805 Stoney Brook APT104 Houston TX 77063**

Effectiveness of Filing

☑ A. This document becomes effective when the document is filed by the secretary of state.

OR

☐ B. This document becomes effective at a later date, which is not more than ninety (90) days from the date of its signing. The delayed effective date is:

Execution

The undersigned affirms that the person designated as registered agent has consented to the appointment. The undersigned signs this document subject to the penalties imposed by law for the submission of a materially false or fraudulent instrument and certifies under penalty of perjury that the undersigned is authorized under the provisions of law governing the entity to execute the filing instrument.

Bashar Aburubia

Signature of Organizer

FILING OFFICE COPY

City of Tomball

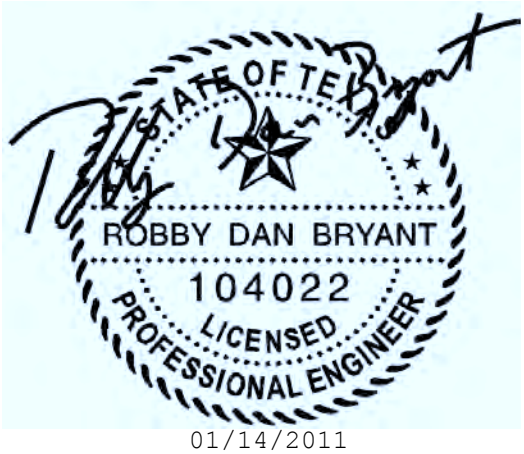
PROJECT MANUAL
SOUTH WASTEWATER TREATMENT PLANT
HEADWORKS REPLACEMENT

HARRIS COUNTY, CITY OF TOMBALL, STATE OF TEXAS

VOLUME 1 OF 2

Divisions 00 through 17

January 14, 2011



01/14/2011

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00200		INSTRUCTIONS TO BIDDERS
00220		REQUEST FOR BID INFORMATION
00410		BID FORM
00430		BIDDER'S BOND (FOR FILING, EXAMPLE FORM)
00453		BIDDER'S STATEMENT OF RESIDENCY
00455		AFFIDAVIT OF OWNERSHIP OR CONTROL
00495		POST-BID PROCEDURES
00500		FORM OF BUSINESS
00501		RESOLUTION OF CORPORATION
00520		AGREEMENT
00600		LIST OF PROPOSED SUBCONTRACTORS AND SUPPLIERS
00601		DRUG POLICY COMPLIANCE AGREEMENT
00604		HISTORY OF OSHA ACTIONA AND LIST OF ON-THE-JOB INJURIES
00607		CERTIFICATION REGARDING DEBARMENT, SUSPENSION, AND OTHER RESPONSIBILITY MATTERS
00610		PERFORMANCE BOND
00611		STATUTORY PAYMENT BOND
00612		ONE-YEAR MAINTENANCE BOND
00620		AFFIDAVIT OF INSURANCE
00700		GENERAL CONDITIONS
00800		SUPPLEMENTARY CONDITIONS
00931		REQUEST FOR INFORMATION (EXAMPLE FORM)
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01200		MEASUREMENT AND PAYMENT
01310		PROJECT MEETINGS
01322		PROGRESS SCHEDULE
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01330	CL	O&M MANUAL REVIEW CHECKLIST
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01420		REFERENCE STANDARDS AND ABBREVIATIONS
01500		TEMPORARY CONSTRUCTION FACILTIES AND UTILITIES
01505		MOBILIZATION
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DIVISION 0

Document 00015

LIST OF DRAWINGS

Sheet No.	**Drawing Title**
G-001	COVER SHEET
G-002	DRAWING INDEX
G-003	GENERAL NOTES
G-004	ABBREVIATIONS
G-005	STANDARD DESIGNATIONS
M-001	LEGEND
M-101	HEADWORKS PLAN AND SECTION
M-201	HEADWORKS SCREENING SECTION
M-301	DETAILS
M-801	DEMOLITION
E-001	ELECTRICAL LEGEND AND SYMBOLS – SHEET 1
E-002	ELECTRICAL LEGEND AND SYMBOLS – SHEET 2
E-003	MCCE AND MCCF – ONE LINE DIAGRAM
E-004	HEADWORKS ELECTRICAL – PLAN EL 177.50
E-005	PLANT MONITORING SYSTEM – PLC INPUTS

END OF DOCUMENT

City of Tomball

Gretchen Fagan
Mayor

George Shackelford
City Manager

NOTICE TO BIDDERS

The City of Tomball, Texas shall accept sealed bids for "**South Wastewater Treatment Plant – Headworks Replacement."** The Bid Documents may be obtained through the City's Engineering and Planning Department's Capital Improvements Webpage (http://www.ci.tomball.tx.us/engineering-planning/capital-improvement/index.html).

Sealed bids shall be addressed to the City Purchasing Agent, City of Tomball, 501 James Street, Tomball, Texas 77375, and shall be labeled **"Project Number 2011-02, DO NOT OPEN**". Bids shall be submitted no later than **10:00 a.m., Local Time on December 1, 2011.**

A pre-bid conference will be held on November 19, 2011, at 10:00 a.m. at the City of Tomball, Public Works Building, 501 James Street, Tomball, Texas 77375, to familiarize the Bidders with the goals for this project. The pre-bid conference is not manadatory.

DRAWINGS and SPECIFICATIONS are on file at the following locations and may be examined without charge:

- Dodge Reports - 4101 Greenbriar Suite 320, Houston, Texas 77098
- Associated General Contractors – 2400 Augusta Street Suite 180, Houston, Texas 77057

Cashier's Check, Certified Check, or Bid Bond in an amount equal to five percent (5%) of the total amount bid must accompany the BID. The Owner reserves the right to reject any or all bids or to accept any bid deemed advantageous to it and waive informalities in bidding. All bids received after the closing time designated will be returned unopened.

Upon consideration of the bids, the City of Tomball reserves the right to accept or to reject any and all bids, to waive technicalities and to make any investigation deemed necessary concerning the bidder's ability to provide the services as covered by the specifications, and to accept what in their judgment is the most advantageous bid.

_____
George Shackelford, City Manager

CERTIFICATION

I certify that the above "Notice to Bidders" was posted on the bulletin board of City Hall, City of Tomball, Texas on the ___ day of _____, 2011.

_____
Doris Speer, City Secretary

Section 00200

INSTRUCTIONS TO BIDDERS

1. DEFINITIONS

A. Terms used in these Instructions to Bidders which are defined in the Standard General Conditions of the Construction Contract (General Conditions) have the meanings assigned to them in the General Conditions. Other terms used in the Bidding Documents and not defined elsewhere have the following meanings, which are applicable to both the singular and plural thereof:

1. Bidder: One who submits a bid directly to the Owner.

2. Successful Bidder: The most qualified, responsible and responsive bidder to whom the Owner makes an award.

3. Bidding Documents: The Notice to Bidders, Instructions to Bidders, Supplementary Conditions to General Conditions, Special Conditions (Underground Utilities), Special Conditions to the Agreement, Proposal and the Proposed Contract Documents (including Addenda issued prior to receipt of Bids).

2. PREPARATION OF BIDS

A. Complete sets of bidding documents must be used in preparing bids. Neither the Owner nor Engineer assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of bidding documents. Copies of bidding documents are made available only for the purpose of obtaining bids on the work and do not confer a license or grant for any other use.

3. QUALIFICATIONS OF BIDDERS

A. Each bidder must submit with the bid a Financial and Experience Statement. The statement shall be filed with the proposal in a separate sealed envelope marked "Financial and Experience Statement".

B. Financial statements from the three most qualified bidders will be retained by the Owner until award of the contract. NO FINANCIAL STATEMENT WILL BE READ ALOUD AT THE BID OPENING. Upon award of the contract, the statements of all unsuccessful bidders will be returned.

C. Additional written evidence of qualifications, such as financial data, previous experience, present commitments, and other such data as may be called for by the OWNER.

4. EXAMINATION OF CONTRACT DOCUMENTS AND SITE

A. It is the responsibility of each Bidder before submitting a Bid to (a) examine the Contract Documents thoroughly, (b) visit the site to become familiar with local conditions that may

affect cost, progress, performance, or furnishing of the Work, (c) consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work, (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify ENGINEER of all conflicts, errors, or discrepancies in the Contract Documents discovered by the Bidder.

B. Information and data reflected in the Contract Documents with respect to Underground Facilities at or contiguous to the site is based upon information and data furnished to OWNER and ENGINEER by owners of such Underground Facilities or others, and OWNER does not assume responsibility for the accuracy or completeness thereof unless it is expressly provided otherwise in the Supplementary Conditions.

C. Provisions concerning responsibilities for the adequacy of data furnished to prospective Bidders on subsurface conditions, underground facilities, and other physical conditions, and possible changes in the Contract Documents due to differing conditions appear in Paragraphs 4.02, 4.03, and 4.04 of the General Conditions.

D. Before submitting a Bid, each Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests, and studies, and obtain any additional information and data which pertain to the physical conditions (surface, subsurface, and Underground Facilities) at or contiguous to the site or otherwise which may affect cost, progress, performance, or furnishing of the Work, and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents.

E. On request in advance, OWNER will provide each Bidder access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall clean up and restore the site to its former condition upon completion of such explorations.

F. Failure to perform such investigations during the Bid period shall not relieve Bidder from responsibility for investigations, interpretations and proper use of available information in preparation of Bidder's proposal.

G. The lands upon which the Work is to be performed, rights-of-way, and easements for access thereto and other lands designated for use by CONTRACTOR in performing the Work are identified in the Contract Documents. All additional lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by CONTRACTOR. Easements for permanent structures or permanent changes in existing structures are to be obtained and paid for by OWNER unless otherwise provided in the Contract Documents.

H. The submission of a Bid will constitute an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article 4, that without exception the Bid is premised upon performing and furnishing the Work required by the Contract Documents and such means, methods, techniques, sequences, or procedures of

construction as may be indicated in or required by the Contract Documents, and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

6. INTERPRETATION OF DOCUMENTS AND ADDENDA

A. All questions about the meaning or intent of the Contract Documents must be submitted to the Engineer in writing at least ten (10) days prior to the opening of bids. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda at least 48 hours prior to Bid Opening.

B. Any interpretation of the Contract Documents will be made only by Addendum duly issued, and a copy of such addendum will be made available to each prospective bidder recorded by ENGINEER as having received a set of Contract Documents. Each Bidder is responsible for obtaining Addenda. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

C. Addenda may also be issued to modify the Contract Documents as deemed advisable by ONWER and ENGINEER.

7. BID SECURITY

A. Each Bid shall be accompanied by Bid security made payable to OWNER in an amount of five percent of the Bidder's maximum Bid price and in the form of a bid bond, cashier's check, or certified check. Bid Bond shall have a "B+" rating from Best's Key Rating Guide, and shall be duly authorized by the State of Texas to execute Bid Security.

B. The Bid security of the Successful Bidder will be retained until such Bidder has executed the Agreement and furnished the required contract security, whereupon the Bid security will be returned. If the Successful Bidder fails to execute and deliver the Agreement and furnish the required contract security with 15 calendar days after the Notice of Award, OWNER may annul the Notice of Award and the Bid security of that Bidder will be forfeited. The Bid security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of the seventh day after the Effective Date of the Agreement or the forty-sixth day after the Bid opening, whereupon Bid security furnished by such Bidders will be returned. Bid security with Bids which are not competitive will be returned within 7 days after the Bid opening.

8. CONTRACT TIME

A. The number of days within which, or the dates by which, the Work is to be substantially completed and also completed and ready for final payment (the Contract Time) are set forth in the Agreement.

9. LIQUIDATED DAMAGES

A. Provisions for liquidated damages, if any, are set forth in the Agreement.

10. SUBSTITUTE OR "OR EQUAL" ITEMS

A. The Contract, if awarded, will be on the basis of materials and equipment described in the DRAWINGS or specified in the Specifications without consideration of possible substitute or "or equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the Effective Date of the Agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in Paragraph 6.05 of the General Conditions and may be supplemented in the General Requirements (Division 1).

11. SUBCONTRACTORS, SUPPLIERS AND OTHERS

A. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, and other person and organizations (including those who are to furnish the principal items of material and equipment) to be submitted to OWNER in advance of the specified date prior to the Effective Date of the Agreement, the apparent Successful Bidder, and any other Bidder so requested, shall within 7 days after the Bid opening, submit to OWNER a list of all such Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, person, or organization, either may, before the Notice of Award is given, request the apparent Successful Bidder to submit an acceptable substitute without an increase in Bid price.

B. If apparent Successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, and other persons and organizations. The declining to make requested substitutions will not constitute grounds for sacrificing the Bid security of any Bidder. Any Subcontractor, Supplier, other person, or organization listed and to whom OWNER or ENGINEER does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the Effective Date of the Agreement as provided in Paragraph 6.06.B of the General Conditions.

C. In Contracts where the Contract Price is on the basis of Cost of Work Plus a Fee, the apparent Successful Bidder, prior to the Notice of Award, shall identify in writing to OWNER those portions of the Work that such Bidder proposes to subcontract and after the Notice of Award may only subcontract other portions of the Work with OWNER'S written consent.

D. No CONTRACTOR shall be required to employ any Subcontractor, Supplier, other person, or organization against whom CONTRACTOR has a reasonable objection.

12. BID FORMS

A. All Bids shall be completely filled out on the specified bid forms without modification or provisions unless otherwise required.

B. The Bids shall be completed in duplicate. The original shall be filed with the OWNER and the Bidder shall keep the duplicate.

C. The Bids must be clearly and legibly filled out in ink or typed. In case of ambiguity or lack of clearness in stating the prices tendered or the condition of the Bid, the OWNER reserves the right to consider the most favorable construction thereof or to reject the Bid from further consideration.

D. All Bids must be officially executed. Bids by Corporations must be executed in the corporate name by the president or vice president (or other corporate officer, accompanied by evidence of authority to sign) and the corporate seal must be affixed and attested by the secretary or assistant secretary. The corporate address and state of incorporation must be shown below the signature. Bids by partnerships must be executed in the partnership name and signed by a partner, whose title must appear under the signature, and the official address of the partnership must be shown below the signature. All business entity names must be registered with the Secretary of State of Texas and appropriate office of registration.

E. The Bid shall contain an acknowledgement of receipt of all Addenda (the numbers of which must be filled in on the Bid Form).

13. SUBMISSION OF BIDS

A. Bids shall be submitted at the time and place indicated in the Notice to Bidders, and shall be enclosed in an opaque sealed envelope marked with the Project title, name and address of the Bidder and containing Bid security and other required documents. Bids will be securely kept unopened, until the specified time. The bids received after the specified time will not be considered. All incomplete Bids shall be considered non-responsive. If the Bid is sent through the mail or other delivery system, the sealed envelope shall be enclosed in a separate envelope with the notation “BID ENCLOSED” on the face of it.

14. MODIFICATION AND WITHDRAWAL OF BIDS

A. Bids may be modified or withdrawn by an appropriate document duly executed (in the manner that a Bid must be executed) and delivered to the place where Bids are to be submitted at any time prior to opening of Bids.

B. If, within 24 hours after Bids are opened, any Bidder files a duly signed, written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of

OWNER that there was a material and substantial mistake in the preparation of its Bid, that Bidder may withdraw its Bid and the Bid security will be returned. Thereafter, that Bidder will be disqualified from further bidding on the Work to be provided under the Contract Documents.

15. OPENING OF BIDS

A. Bids will be opened and read aloud publicly. An abstract of the amounts of the base Bids and major alternates (if any) will be made available to Bidders within 7 calendar days after the date of Bid opening.

16. BIDS TO REMAIN SUBJECT TO ACCEPTANCE

A. The apparent Successful Bid and the next two lowest Bids will remain subject to acceptance for 60 calendar days after the day of the Bid opening. All other Bids will be released and the Bid security returned within 7 days. OWNER may, in its sole discretion, release any Bid and return the Bid security prior to that date.

17. AWARD OF CONTRACT

A. Contract will be awarded on basis of low Base Bid. Selection of alternates or deductive Bid Items by the OWNER will not be used to displace the low Bidder.

B. The Owner reserves the right to reject any and all bids, to waive any and all informalities not involving price, time or changes in the Work, to negotiate contract terms with the Successful Bidder, and to disregard all non-conforming, non-responsive, unbalanced or conditional Bids. Also, OWNER reserves the right to reject the Bid of any Bidder if OWNER believes that it would not be in the best interest of the Project to make an award to that Bidder, whether because the Bid is not responsive or the Bidder is unqualified or of doubtful financial ability or fails to meet any other pertinent standard or criteria established by OWNER. Discrepancies in the multiplication of units of Work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

C. In evaluating Bids, OWNER will consider the qualifications of the Bidders, whether or not the Bids comply with the prescribed requirements and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

D. OWNER may consider the qualifications and experience of Subcontractors, Suppliers, and other persons and organizations proposed for those portions of the Work as to which the identity of Subcontractors, Suppliers, and other persons and organizations must be submitted as provided in the Supplementary Conditions. OWNER also may consider the operating costs, maintenance requirements, performance data, and guarantees of major items of materials and equipment proposed for incorporation in the Work when such data is required to be submitted prior to the Notice of Award.

E. OWNER may conduct such investigations as OWNER deems necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, and other persons and organizations to perform and furnish the Work in accordance with the Contract Documents to OWNER'S satisfaction within the prescribed time.

F. Alternate bid items are included in the Bid Form. The Successful Bidder will be determined based on either the low Base Bid (Part C of the Bid), or the low Base Bid Plus Alternate Bid (Part E of the Bid), at the discretion of the OWNER.

G. If the Contract is to be awarded, OWNER will give the Successful Bidder a Notice of Award within 60 calendar days after the day of the Bid opening.

18. CONTRACT SECURITY

A. Paragraph 5.1 of the General Conditions and the Supplementary Conditions set forth OWNER'S requirements as to performance and payment Bonds. When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required performance and payment Bonds.

19. INSURANCE CERTIFICATES

A. The CONTRACTOR shall provide and maintain a minimum coverage as defined in the Contract Documents (Article 5 of the General Conditions). The companies providing the coverage shall be acceptable to the OWNER (Certificate of Insurance Section 00620).

20. SIGNING OF AGREEMENT

A. When OWNER gives a Notice of Award to the Successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within 15 calendar days thereafter, CONTRACTOR shall sign and deliver the required number of counterparts of the Agreement, and attached documents to OWNER with the required Bonds. Within 10 calendar days thereafter, OWNER shall deliver one fully signed counterpart to CONTRACTOR. Each counterpart is to be accompanied by a complete set of the Drawings with appropriate identification.

21. PRE-BID CONFERENCE

A. A pre-bid conference will be held at the time and place indicated in the Invitation to Bid (Section 00100). Representatives of OWNER and ENGINEER will be present to discuss the Project. All prospective bidders are encouraged to attend and participate in the conference. ENGINEER will notify all prospective Bidders of record of any such Addenda as ENGINEER considers necessary in response to questions arising at the conference.

22. **SALES TAX**

A. Owner is exempt from Texas sales and use taxes pursuant to Texas Tax Code §151.309 as a political subdivision of the State of Texas. OWNER shall provide CONTRACTOR with a completed Texas Sales and Use Tax Exemption Certification as evidence of the applicability of such exemption and, accordingly, CONTRACTOR shall not collect Texas sales and use taxes from OWNER with respect to this Contract. CONTRACTOR and all Subcontractors to CONTRACTOR shall issue a Texas Sales and Use Tax Exemption Certification with respect to, and shall not pay Texas sales and use taxes on, all purchases of the following items that are exempt from Texas sales and use taxes pursuant to Texas Tax Code §151.311: (i) tangible personal property that will be incorporated into OWNER'S realty; (ii) tangible personal property that is necessary and essential for the performance of this Contract and is consumed entirely on the job site; and (iii) taxable services for use in the performance of this Contract that are performed at the job site and are either integral to the performance of this Contract or expressly required to be provided by this Contract. In addition, CONTRACTOR and all Subcontractors to CONTRACTOR (i) shall not include any provision for Texas sales and use taxes with respect to such exempt items in any bid or contract amount, and (ii) shall pass on to OWNER cost savings due to the exempt status of such exempt items. CONTRACTOR'S contracts with all Subcontractors to CONTRACTOR shall include the foregoing provision regarding the exemption from Texas sales and use taxes.

+ + END OF SECTION + +

Document 00220

REQUEST FOR BID INFORMATION

PROJECT: South WWTP Headworks Replacement

PROJECT No 2011-002

TO: _____

_____

_____

Phone No. _____

Fax No. _____

Email Addr. _____

(Type or Print question legibly; use back if more space is needed)

This request relates to _____ and/or _____

Drawing / Detail No. Specification Section No.

Attachments to this request: _____

_____

_____

_____ _____

Signature Date

_____

(Type or Print Name)

_____

(Type or Print Company Name)

END OF DOCUMENT

Document 00410A

BID FORM – PART A

To: **The Honorable Mayor and City Council of the City of Tomball**
City Hall

Tomball, Texas

Project: South Wastewater Treatment Plant – Headworks Replacement
Project No.: _____
Bidder: _____
(Print or type full name of proprietorship, partnership, corporation, or joint venture.)

1.0 OFFER

A. Total Bid Price: Having examined the Project location and all matters referred to in Bid Documents for the Project, we, the undersigned, offer to enter into a Contract to perform the Work for the Total Bid Price shown on the signature page of this Document

B. Security Deposit: Included with the Bid is a Security Deposit in the amount of 10 percent of the Total Bid Price subject to terms described in Document 00200 – Instructions to Bidders.

C. Period for Bid Acceptance: This offer is open to acceptance and is irrevocable for 90 days from Bid Date. That period may be extended by mutual written agreement of the City and Bidder.

D. Addenda: All Addenda have been received. Modifications to Bid Documents have been considered and all related costs are included in the Total Bid Price.

E. Bid Supplements: The following documents are attached:

[X] Security Deposit *(as defined in Document 00200 – Instructions to Bidders)*
[X] Document 00453 – Bidder's Statement of Residency
[X] Document 00455 – Affidavit of Ownership or Control
[ ] Page 00809-63, Request for Contractor Clearance
[ ] Others as listed: _____

2.0 CONTRACT TIME

A. If offer is accepted, Contractor shall achieve Date of Substantial Completion within 100 days after Date of Commencement of the Work, subject to adjustments of Contract Time as provided in the Contract.

Document 00410B

BID FORM – PART B

1.0 TOTAL BID PRICE HAS BEEN CALCULATED BY BIDDER, USING THE FOLLOWING COMPONENT PRICES AND PROCESS (PRINT OR TYPE NUMERICAL AMOUNTS):

A. STIPULATED PRICE: $

(Total Bid Price; minus Base Unit Prices, Extra Unit Prices, Cash Allowances and All Alternates, if any)

B. BASE UNIT PRICE TABLE:

Item No.	Control No.	Item Description	Unit Measure	Unit Quantity	Unit Price	Total in figures
		N/A				
TOTAL BASE UNIT PRICES						$ N/A

C. EXTRA UNIT PRICE TABLE:

Item No.	Control No.	Item Description	Unit Measure	Unit Quantity	Unit Price	Total in figures
		N/A				
TOTAL EXTRA UNIT PRICES						$ N/A

REST OF PAGE INTENTIONALLY LEFT BLANK

D. CASH ALLOWANCE TABLE:

Cash Allowance No.	Cash Allowance Short Title	Cash Allowance in figures
	N/A	
TOTAL CASH ALLOWANCES		N/A

E. ALTERNATES TABLE:

Alternate No.	Alternate Short Title (Perforated Plate Screen (6mm opening) and Washer/Compactor)	Total Price for Alternate in figures
1a	Headworks Perforated Screen and Screwpactor	
1b	JWC Fine Screen and Screenings Washer without grinder	
1c	Meunier Escalator Fine Screen and Rotopac	

F. TOTAL BID PRICE: **$**_____
(Add Totals for Items A., B., C., D., and E. above)

2.0 SIGNATURES: By signing this Document, I agree that I have received and reviewed all Addenda and considered all costs associated with the Addenda in calculating the Total Bid Price.

Bidder: _____
(Print or type full name of your proprietorship, partnership, corporation, or joint venture.*)

**By: _____
Signature Date

Name: _____
(Print or type name) Title

Address: _____
(Mailing)

(Street, if different)

Telephone and Fax Number: _____
(Print or type numbers)

* If Bid is a joint venture, add additional Bid Form signature sheets for each member of the joint venture.

** Bidder certifies that the only person or parties interested in this offer as principals are those named above. Bidder has not directly or indirectly entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding.

Note: This document constitutes a government record, as defined by § 37.01 of the Texas Penal Code. Submission of a false government record is punishable as provided in § 37.10 of the Texas Penal Code.

+ + END OF SECTION + +

Document 00430

BIDDER'S BOND

THAT WE, _____, as Principal,
(Bidder)
("Bidder"), and the other subscriber hereto, _____, as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of Tomball, a municipal corporation, in the sum of _____ Dollars ($_____) (an amount equal to 10 percent of the Total Bid Price, including Cash Allowances and Alternates, if any, for the payment of which sum, well and truly to be made to the City of Tomball and its successors, the Bidder and Surety do bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Bidder has submitted on or about this day a proposal offering to perform the following:

_____

_____
(Project Name, Location and Number)

in accordance with the Drawings, Specifications, and terms and conditions related thereto to which reference is hereby made.

NOW, THEREFORE, if the Bidder's offer as stated in the Document 00410 – Bid Form is accepted by the City, and the Bidder executes and returns to the City Document 00520 – Agreement, required by the City, on the forms prepared by the City, for the Work and also executes and returns the same number of the Performance, Payment and Maintenance Bonds (such bonds to be executed by a Corporate Surety authorized by the State Board of Insurance to conduct insurance business in the State of Texas, and having an underwriting limitation in at least the amount of the bond) and other submittals as required by Document 00495 - Post-Bid Procedures, in connection with the Work, within the Contract Time, then this obligation shall become null and void; otherwise it is to remain in full force and effect.

If Bidder is unable to or fails to perform the obligations undertaken herein, the undersigned Bidder and Surety shall be liable to the City for the full amount of this obligation which is hereby acknowledged as the amount of damages which will be suffered by the City on account of the failure of such Bidder to perform such obligations, the actual amount of such damages being difficult to ascertain.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other Party at the address prescribed in the Contract documents, or at such other address as the receiving Party may hereafter prescribe by written notice to the sending Party.

IN WITNESS THEREOF, the Bidder and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)
WITNESS: (if not a corporation)

By: _____
Name:
Title:

_____
(Name of Bidder)

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS: (SEAL)

_____
(Full Name of Surety)

_____
(Address of Surety for Notice)

_____

_____
(Telephone Number of Surety)

By: _____
Name:
Title:
Date:

By: _____
Name:
Title:
Date:

END OF DOCUMENT

Document 00453

BIDDER'S STATEMENT OF RESIDENCY

The City may not award a contract for general construction, services, or purchases to a Nonresident Bidder unless Nonresident's Bid is lower than the lowest Bid submitted by a responsible Texas Resident Bidder by the same amount that a Texas Resident bidder would be required to underbid the Nonresident Bidder to obtain a comparable contract in the state in which Nonresident's principle place of business is located.

1. This certifies that the Bidder, _____, is a State of Texas Resident Bidder as defined in TEX. GOVT. CODE ANN. § 2252.001(4) (Vernon 1994).

_____ _____
Signature Title

"Texas Resident Bidder" means a bidder whose principal place of business is in this State, and includes a Contractor whose ultimate parent company or majority owner has its principal place of business in this State. *When bidder cannot sign 1, above, proceed to 2.*

2. a. _____ is a resident of _____ and is a Nonresident Bidder as defined in TEX. GOVT. CODE ANN. § 2252.001(3) (Vernon 1994).

_____ _____
Signature Title

"Nonresident Bidder" means a bidder whose principal place of business is not in this State, but excludes a contractor whose ultimate parent company or majority owner has its principal place of business in this State.

b. The State of _____ _____ have a state statute giving
Bidder's resident state Does or Does Not
preference to resident bidders.

_____ _____
Signature Title

If the answer to 2.b is that your state does have a statute giving preference to resident bidders, then you must provide a copy and proceed to 3.

3. A copy of the State of _____ statute is attached.

_____ _____
Signature Title

_____
Date

END OF DOCUMENT

Orig. Dept.: _____ File/I.D. No.: _____

INSTRUCTION: Entities using an assumed name should disclose such fact to avoid rejection of the affidavit. The following format is recommended: Corporate/Legal Name d.b.a. Assumed Name.

Document 00455

AFFIDAVIT OF OWNERSHIP OR CONTROL

BEFORE ME, the undersigned authority, on this day personally appeared _____ (Full Name, hereafter "Affiant"), _____ (state title/capacity with Contracting Entity) of _____ (Contracting Entity's Corporate/Legal Name) ("Contracting Entity"), who being by me duly sworn on oath stated as follows:

1. Affiant is authorized to give this affidavit and has personal knowledge of the facts and matters herein stated.

2. Contracting Entity seeks to do business with the City in connection with

_____

(describe project or matter) which is expected to be in an amount that exceeds $25,000.

3. The following information is submitted in connection with the proposal, submission or bid of Contracting Entity in connection with the above described project or matter.

4. Contracting Entity is organized as a business entity as noted below (check box as applicable):

FOR PROFIT ENTITY:
[ ] SOLE PROPRIETORSHIP
[ ] CORPORATION
[ ] PARTNERSHIP
[ ] LIMITED PARTNERSHIP
[ ] JOINT VENTURE
[ ] LIMITED LIABILITY COMPANY
[ ] OTHER (Specify type in space below)

NON-PROFIT ENTITY:
[ ] NON-PROFIT CORPORATION
[ ] UNINCORPORATED ASSOCIATION

_____

_____

_____

Orig. Dept.: _____ File/I.D. No.: _____

5. The information shown below is true and correct for the Contracting Entity and all owners of 5% or more of the Contracting Entity and, where the Contracting Entity is a non-profit entity, the required information has been shown for each officer. (NOTE: In all cases, use full names, local business and residence addresses and telephone numbers. Do not use post office boxes for any address. Inclusion of e-mail addresses is optional, but recommended. Attach additional sheets as needed.)

Contracting Entity

Name: _____

Business Address (No./Street) _____

(City/State/Zip Code) _____

Telephone Number (_____)_____

Email Address (optional) _____

Residence Address (No./Street) _____

(City/State/Zip Code) _____

Telephone Number (_____)_____

Email Address (optional) _____

5% Owner(s) **(IF NONE, STATE "NONE.")**

Name: _____

Business Address (No./Street) _____

(City/State/Zip Code) _____

Telephone Number (_____)_____

Email Address (optional) _____

Residence Address (No./Street) _____

(City/State/Zip Code) _____

Telephone Number (_____)_____

Email Address (optional) _____

6. ***Optional Information***

Contracting Entity and/or _____ (Name of Owner or Non-Profit Officer) is actively protesting, challenging or appealing the accuracy and/or amount of taxes levied against _____ (Contracting Entity, Owner or Non-Profit Officer) as follows:

Orig. Dept.: _____ File/I.D. No.: _____

Name of Debtor: _____

Tax Account Nos. _____

Case or File Nos. _____

Attorney/Agent Name _____

Attorney/Agent Phone No. (_____)_____

Tax Years _____

Status of Appeal (Describe) _____

_____

_____

_____

Affiant certifies that he or she is duly authorized to submit the above information on behalf of the Contracting Entity, that Affiant is associated with the Contracting Entity in the capacity noted above and has personal knowledge of the accuracy of the information provided herein, and that the information provided herein is true and correct to the best of Affiant's knowledge and belief.

_____
Affiant

SWORN TO AND SUBSCRIBED before me this _____ day of _____, 20_____.

(Seal)

_____
Notary Public

NOTE:
This affidavit constitutes a **government record** as defined by Section 37.01 of the Texas Penal Code. Submission of a false government record is punishable as provided in Section 37.10 of the Texas Penal Code. Attach additional pages if needed to supply the required names and addresses.

+ + END OF DOCUMENT + +

Document 00495

POST-BID PROCEDURES

1.0 DOCUMENT ADDRESSES

A. Notice of Intent to Award.

B. Monitoring Authority

C. Failure of Bidder to comply with requirements.

D. Notice to Proceed.

2.0 NOTICE OF INTENT TO AWARD

A. The City will provide written Notice of Intent to Award to Low Bidder.

3.0 DEFINITIONS

A. The “Monitoring Authority” for this Project is:

B. The “Project Manager” for this Project is:

4.0 REQUIREMENTS OF BIDDER

A. Within 10 days of receipt of Notice of Intent to Award, Low Bidder shall execute and deliver to Project Manager and Monitoring Authority, for the City's approval, documents indicated by an "X" below:
[X] Document 00600 - List of Proposed Subcontractors and Suppliers
[X] Executed Subcontract(s), Letter(s) of Intent, or documentation of good faith efforts to meet the goals

B. Within 10 days of receipt of Notice of Intent to Award, Low Bidder shall execute and deliver to Project Managerfor the City's approval, documents indicated by an "X" below:
[X] Document 00500 - Form of Business
[X] Document 00501 - Resolution of Corporation
[X] Document 00520 - Agreement

[X] Document 00601 - Drug Policy Compliance Agreement
[X] Document 00602 - Contractor's Drug-free Workplace Policy *(Contractor creates this document.)*
[X] Document 00604 - History of OSHA Actions and List of On-the-job Injuries
[X] Document 00605 - List of Safety Impact Positions *(Contractor completes this list. Do not submit if submitting Document 00606.)*
[ ] Document 00606 - Contractor's Certification of No Safety Impact Positions *(Do not submit if submitting Document 00605.)*
[X] Document 00607 - Certification Regarding Debarment, Suspension, and Other Responsibility Matters
[X] Document 00610 - Performance Bond
[X] Document 00611 - Statutory Payment Bond
[X] Document 00612 - One-year Maintenance Bond
[ ] Document 00613 - One-year Surface Correction Bond
[X] Document 00620 - Affidavit of Insurance *(with Certificate of Insurance attached)*
[X] Document 00622 - Name and Qualifications of Proposed Superintendent *(Contractor creates this document.)*

C. On Bidder's written request, Project Manager may grant an extension of time, not to exceed 5 days, to furnish documents specified in Paragraphs 4.0.A and 4.0.B. If Bidder is required to resubmit documents specified in Paragraph 4.0.A or 4.0.B, Bidder shall do so within time limits provided in the request for resubmission.

5.0 FAILURE OF BIDDER TO COMPLY WITH REQUIREMENTS

A. Should Bidder, on receipt of Notice of Intent to Award, fail to comply with requirements of this Document 00495 within stated time, the City may declare award in default and require forfeiture of the Security Deposit.

B. After the City's written notice of default to Low Bidder, the City may award the Contract to Bidder whose offer is the next lowest bid, and Security Deposit of Bidder in default shall be forfeited to the City in accordance with provisions of Document 00200 - Instructions to Bidders.

6.0 NOTICE TO PROCEED

A. Upon the City's execution of the Agreement and delivery to Contractor, City Engineer will give Document 00551 - Notice to Proceed to Contractor, which establishes Date of Commencement of the Work.

END OF DOCUMENT

Document 00500

FORM OF BUSINESS

Please mark the box describing your firm's form of business, fill in the requested information, and include the relevant attachments.

[ ] Corporation
Corporate Name: _____
State of Incorporation: _____
Mailing Address: _____
Type of Corporation: _____

Certificate of Assumed Name, if operating under a name different than that on the corporate charter (the Certificate must have been issued within the past 10 years to be valid)

*Certificate of Good Standing

*Certificate of Existence (if non-Texas corporation, Certificate of Authority)

[ ] Partnership/Joint Venture
Partnership/Joint Venture Name: _____
Mailing Address: _____
Type of Partnership/Joint Venture: _____

Copy of the Partnership or Joint Venture Agreement, **or**
Affidavit with the name of the partnership or joint venture, the names of the individual partners or participants in the joint venture, and a statement that the partnership or joint venture is in existence

Certificate of Assumed Name, (the Certificate must have been issued within the past 10 years to be valid)

If firm is a limited partnership, the Certificate of Limited Partnership

If any partner or joint venturer is a corporation, the above information relating to corporation must be included as to each sum partner or joint venturer.

[ ] Sole Proprietorship

Name: _____
Mailing Address: _____

Certificate of Assumed Name, if operating under a name different than that of the sole proprietor (the Certificate must have been issued within the past 10 years to be valid)

* Must be furnished upon request of the Director and must be less than 90 days old.

END OF DOCUMENT

Document 00501

RESOLUTION OF CORPORATION

I hereby certify that it was RESOLVED by a quorum of the directors of

_____
(Name of Corporation / Contractor)

on the _____ day of _____, 20___, that _____,
(Corporate Representative)

be, and hereby is, authorized to act on behalf of the Corporation, as its representative, in all business transactions conducted in the State of Texas, and

That the above resolution was unanimously ratified by the Board of Directors at said meeting and that the resolution has not been rescinded or amended and is now in full force and effect; and

In authentication of the adoption of this resolution, I subscribe my name on this _____ day of _____, 20____.

_____
Secretary/Assistant Secretary

END OF DOCUMENT

Document 00520

AGREEMENT

Project: South WWTP Headworks Replacement

Project Location: 12411 Holderrieth Rd, Tomball, TX 77375

Project No: **2011-002**

The City: The City of Tomball, County of Harris, Texas (the "City")

and

Contractor: _____

(Address for Written Notice) _____

_____

Fax Number: _____

City Engineer is: Water Works Engineers, LLC

(Address for Written Notice) 12530 Champion Forest Drive #100, Houston, TX 77066

Fax Number: 815-301-6586

THE CITY AND CONTRACTOR AGREE AS FOLLOWS:

ARTICLE 1
THE WORK OF THE CONTRACT

1.1 Contractor shall perform the Work in accordance with the Contract.

ARTICLE 2
CONTRACT TIME

2.1 Contractor shall achieve Date of Substantial Completion within 100 calendar days after Date of Commencement of the Work, subject to adjustments of Contract Time as provided in the Contract.

2.2 The Parties recognize that time is of the essence for this Agreement and that the City will suffer financial loss if the Work is not completed within the Contract Time. Parties also recognize delays, expense, and difficulties involved in proving in a legal or arbitration proceeding actual loss suffered by the City if the Work is not completed on time. Accordingly, instead of requiring any such proof, the Parties agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay the City the amount stipulated in Document 00800 – Supplementary Conditions, for each day beyond Contract Time.

ARTICLE 3

CONTRACT PRICE

3.1 Subject to terms of the Contract, the City will pay Contractor in current funds for Contractor's performance of the Contract, Contract Price of $_____ which includes Alternates, if any, accepted below.

3.2 The City accepts Alternates as follows:

Alternate No. 1 Selection:

ARTICLE 4
PAYMENTS

4.1 The City will make progress payments to Contractor as provided below and in Conditions of the Contract.

4.2 The Period covered by each progress payment is one calendar month ending on the [___] 10th, [___] 20th, or [___] last day of the month.

4.3 The City will issue Certificates for Payment and will make progress payments on the basis of such Certificates as provided in Conditions of the Contract.

4.4 Final payment, constituting entire unpaid balance of Contract Price, will be made by the City to Contractor as provided in Conditions of the Contract.

ARTICLE 5

CONTRACTOR REPRESENTATIONS

5.1 Contractor represents:

5.1.1 Contractor has examined and carefully studied Contract documents and other related data identified in Bid Documents.

5.1.2 Contractor has visited the site and become familiar with and is satisfied as to general, local, and site conditions that may affect cost, progress, and performance of the Work.

5.1.3 Contractor is familiar with and is satisfied as to all federal, state, and local laws and regulations that may affect cost, progress, and performance of the Work.

5.1.4 Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except Underground Facilities) which have been identified in Contract documents and (2) reports and drawings of a hazardous environmental condition, if any, at the site which has been identified in Contract documents.

5.1.5 Contractor has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies, and data concerning conditions (surface, subsurface, and Underground Facilities) at or contiguous to the site which may affect cost, progress, or performance of the Work or which relate to any aspect of the means, methods,

techniques, sequences, and procedures of construction to be employed by Contractor, including applying specific means, methods, techniques, sequences, and procedures of construction, if any, expressly required by the Contract to be employed by Contractor, and safety precautions and programs incident thereto

5.1.6 Contractor does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for performance of the Work at Contract Price, within Contract Time, and in accordance with the Contract.

5.1.7 Contractor is aware of general nature of work to be performed by the City and others at the site that relates to the Work as indicated in Contract documents.

5.1.8 Contractor has correlated information known to Contractor, information and observations obtained from visits to the site, reports and drawings identified in the Contract, and all additional examinations, investigations, explorations, tests, studies, and data with the Contract.

5.1.9 Contractor has given City Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract, and written resolution thereof by City Engineer is acceptable to Contractor.

5.1.10 Contract documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 6

MISCELLANEOUS PROVISIONS

6.1 The Contract may be terminated by either Party as provided in Conditions of the Contract.

6.2 The Work may be suspended by the City as provided in Conditions of the Contract.

ARTICLE 7

ENUMERATION OF CONTRACT DOCUMENTS

7.1 The following documents are incorporated into this Agreement:

7.1.1 Document 00700 - General Conditions

7.1.2 Document 00800 - Supplementary Conditions

7.1.3 General Requirements.

7.1.4 Divisions 02 through 16 of Specifications attached hereto or incorporated by reference in the Table of Contents.

7.1.5 Drawings listed in Document 00015 - List of Drawings and bound separately.

7.1.6 Addenda which apply to the Contract, are as follows:

Addendum 1:

Addendum 2:

Addendum 3:

7.1.7 Other documents:

	Document No.	Title
[X]	00410B	Bid Form – Part B
[X]	00500	Form of Business
[X]	00501	Resolution of Corporation (if a corporation)
[X]	00610	Performance Bond
[X]	00611	Statutory Payment Bond
[X]	00612	One-year Maintenance Bond
[X]	00620	Affidavit of Insurance (with the Certificate of Insurance attached)

ARTICLE 8

SIGNATURES

8.1 This Agreement is executed in two original copies and is effective as of the date of countersignature by City Controller.

CONTRACTOR:

By: _____

Name: _____

Title: _____

Date: _____

Tax Identification Number: _____

(If Joint Venture)

By: _____

Name: _____

Title: _____

Date: _____

Tax Identification Number: _____

CITY OF TOMBALL, TEXAS

APPROVED:

By: _____
City Manager

SIGNED:

By: _____
Mayor

COUNTERSIGNED:

By: _____
City Controller

Date Countersigned:

_____

ATTEST/SEAL:

By: _____
City Secretary

END OF DOCUMENT

Document 00600

LIST OF PROPOSED SUBCONTRACTORS AND SUPPLIERS - PART B[1]
SCHEDULE OF SUBCONTRACTORS AND SUPPLIERS

PROJECT NAME: South WWTP Headworks Replacement DATE OF REPORT: _____
PROJECT NO.: 2011-002

SUBCONTRACTOR OR SUPPLIER	ADDRESS	SCOPE OF WORK[2]

NOTES: 1. RETURN PART B FOR ALL PROJECTS WITHIN THE SPECIFIED NUMBER OF DAYS AFTER RECEIPT OF NOTICE OF INTENT TO AWARD.
2. DESCRIBE THE WORK TO BE PERFORMED, SUCH AS PAVING, ELECTRICAL, ETC.

CONTRACTOR SHALL EXECUTE CONTRACTS WITH APPROVED SUBCONTRACTORS AND SUPPLIERS WITHIN 30 DAYS AFTER THE DATE OF THE NOTICE TO PROCEED.

SIGNATURE: _____ COMPANY NAME: _____

NAME: _____ TITLE: _____
(Type or Print)

END OF DOCUMENT

Document 00601

DRUG POLICY COMPLIANCE AGREEMENT

I, _____, _____,
Name Title

of _____
Contractor

have authority to bind Contractor with respect to its Bid, Proposal, or performance of any and all contracts it may enter into with the City of Tomball; and that by making this Agreement, I affirm that Contractor is aware of and by the time the Contract is awarded will be bound by and agree to designate appropriate safety impact positions for company employee positions, and to comply with the following requirements before the City issues a Notice to Proceed:

1. Develop and implement a written Drug Free Workplace Policy and related drug testing procedures for Contractor that meet the criteria and requirements established by the Mayor's Amended Policy on Drug Detection and Deterrence (Mayor's Drug Policy) and the Mayor's Drug Detection and Deterrence Procedures for Contractors (Executive Order No. _____).

2. Obtain a facility to collect urine samples consistent with Health and Human Services (HHS) guidelines and an HHS-certified drug-testing laboratory to perform drug tests.

3. Monitor and keep records of drug tests given and results; and upon request from the City of Tomball, provide confirmation of such testing and results.

4. Submit semi-annual Drug Policy Compliance Declarations.

I affirm on behalf of Contractor that full compliance with the Mayor's Drug Policy and Executive Order No. _____ is a material condition of the Contract with the City of Tomball,

I further acknowledge that falsification, failure to comply with or failure to timely submit declarations or documentation in compliance with the Mayor's Drug Policy or Executive Order No. _____ will be considered a breach of the Contract with the City and may result in non-award or termination of the Contract by the City.

_____ _____
Contractor Title

_____ _____
Signature Date

END OF DOCUMENT

Document 00604

HISTORY OF OSHA ACTIONS AND LIST OF ON-THE-JOB INJURIES

Prior to award of the Contract, Low Bidder will be required to file the following with the City:

1. A history of all OSHA actions, advisories, etc., Contractor has received on all jobs worked in any capacity, prime or subcontractor. The history shall be for the two-year period preceding the Bid Date of the Project.

2. A list of all on-the-job injuries, accidents, and fatalities suffered by any present or former employees of Contractor during the same two-year period.

3. If less than the two-year period, give the date Contractor started doing business.

This information must be submitted to the City within the time period stated in Document 00498 - Notice of Intent to Award. An officer of the company must certify in a notarized statement that the information submitted is true and correct.

END OF DOCUMENT

Document 00607

CERTIFICATION REGARDING DEBARMENT,
SUSPENSION, AND OTHER RESPONSIBILITY MATTERS

Contractor certifies to the best of its knowledge and belief that it and its principals:

1. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal, State, or local department or agency;

2. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction: violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

3. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph 2 of this certification; and

4. Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Section 1001, a false statement may result in a fine of up to $10,000 or imprisonment for up to five years, or both.

Company:

_____
Typed Name & Title of Authorized Representative

_____ _____
Signature of Authorized Representative Date

☐ I am unable to certify the above statements. My explanation is attached.

END OF DOCUMENT

Document 00610

PERFORMANCE BOND

THAT WE, _____, as Principal, (the "Contractor"), and the other subscriber hereto, _____, as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of Tomball (the "City"), a municipal corporation, in the penal sum of $_____ for the payment of which sum, well and truly to be made to the City, its successors and assigns, Contractor and Surety do bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a Contract in writing with the City for _____

_____,

all of such work to be done as set out in full in said Contract documents therein referred to and adopted by the City Council, all of which are made a part of this instrument as fully and completely as if set out in full herein.

NOW THEREFORE, if the said Contractor shall faithfully and strictly perform the Contract in all its terms, provisions, and stipulations in accordance with its true meaning and effect, and in accordance with the Contract documents referred to therein and shall comply strictly with each and every provision of the Contract and with this Bond, then this obligation shall become null and void and shall have no further force and effect; otherwise the same is to remain in full force and effect. Should the Contractor fail to faithfully and strictly perform the Contract in all its terms, including but not limited to the indemnifications thereunder, the Surety shall be liable for all damages, losses, expenses and liabilities that the City may suffer in consequence thereof, as more fully set forth herein.

It is further understood and agreed that the Surety does hereby relieve the City or its representatives from the exercise of any diligence whatever in securing compliance on the part of the Contractor with the terms of the Contract, and the Surety agrees that it shall be bound to take notice of and shall be held to have knowledge of all acts or omissions of the Contractor in all matters pertaining to the Contract. The Surety understands and agrees that the provision in the Contract that the City will retain certain amounts due the Contractor until the expiration of 30 days from the acceptance of the Work is intended for the City's benefit, and the City will have the right to pay or withhold such retained amounts or any other amount owing under the Contract without changing or affecting the liability of the Surety hereon in any degree.

It is further expressly agreed by Surety that the City or its representatives are at liberty at any time, without notice to the Surety, to make any change in the Contract

documents and in the Work to be done thereunder, as provided in the Contract, and in the terms and conditions thereof, or to make any change in, addition to, or deduction from the Work to be done thereunder; and that such changes, if made, shall not in any way vitiate the obligation in this Bond and undertaking or release the Surety therefrom.

It is further expressly agreed and understood that the Contractor and Surety will fully indemnify and save harmless the City from any liability, loss, cost, expense, or damage arising out of Contractor's performance of the Contract.

If the City gives Surety notice of Contractor's default, Surety shall, within 45 days, take one of the following actions:

1. Arrange for Contractor, with consent of the City, to perform and complete the Contract; or

2. Take over and assume completion of the Contract itself, through its agents or through independent contractors, and become entitled to the payment of the balance of the Contract Price.

If the Surety fails to take either of the actions set out above, it shall be deemed to have waived its right to perform and complete the Contract and receive payment of the balance of the Contract Price and the City shall be entitled to enforce any remedies available at law, including but not limited to completing the Contract itself and recovering any cost in excess of the Original Contract Price from the Surety.

This Bond and all obligations created hereunder shall be performable in Harris County, Texas. This Bond is given in compliance with the provisions of Chapter 2253, Texas Government Code, as amended, which is incorporated herein by this reference.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other Party at the address prescribed in the Contract documents, or at such other address as the receiving party may hereafter prescribe by written notice to the sending party.

IN WITNESS THEREOF, the said Contractor and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)
WITNESS: (if not a corporation)

By: _____
Name:
Title:

_____
Name of Contractor

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS:

(SEAL)

_____
Full Name of Surety

_____
Address of Surety for Notice

_____

_____
Telephone Number of Surety

By: _____
Name:
Title:
Date:

By: _____
Name:
Title: Attorney-in-Fact
Date:

END OF DOCUMENT

Document 00611

STATUTORY PAYMENT BOND

THAT WE, _____, as Principal, hereinafter called Contractor and the other subscriber hereto, _____, as Surety, do hereby acknowledge ourselves to be held and firmly bound unto the City of Tomball, a municipal corporation, in the sum of $_____ for the payment of which sum, well and truly to be made to the City of Tomball, and its successors, the said Contractor and Surety do bind themselves, their heirs, executors, administrators, successors, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a contract in writing with the City of Tomball for _____

_____,

all of such work to be done as set out in full in said Contract documents therein referred to and adopted by the City Council, all of which are made a part of this instrument as fully and completely as if set out in full herein;

NOW, THEREFORE, if the said Contractor shall pay all claimants supplying labor and materials to him or a Subcontractor in the prosecution of the Work provided for in the Contract, then, this obligation shall be void; otherwise the same is to remain in full force and effect;

PROVIDED HOWEVER, that this Bond is executed pursuant to the provisions of Chapter 2253, Texas Government Code, as amended, and all liabilities on this Bond shall be determined in accordance with the provisions of said Article to the same extent as if it were copied at length herein.

IN WITNESS THEREOF, the said Contractor and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)
WITNESS: (if not a corporation)

_____
Name of Contractor

By: _____
Name:
Title:

By: _____
Name:
Title:
Date:

ATTEST/SURETY WITNESS:

(SEAL)

_____
Full Name of Surety

_____
Address of Surety for Notice

_____

_____
Telephone Number of Surety

By: _____
Name:
Title:
Date:

By: _____
Name:
Title: Attorney-in-Fact
Date:

END OF DOCUMENT

Document 00612

ONE-YEAR MAINTENANCE BOND

THAT WE, _____, as Principal, hereinafter called Contractor, and the other subscriber hereto, _____, as Surety, do hereby acknowledge ourselves to be held and firmly bound to the City of Tomball, a municipal corporation, in the sum of $_____, for the payment of which sum well and truly to be made to the City of Tomball and its successors, the said Contractor and Surety do bind themselves, their heirs, executors, administrators, successors, jointly and severally.

THE CONDITIONS OF THIS OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has on or about this day executed a Contract in writing with the City of Tomball for _____

_____,

all of such work to be done as set out in full in said Contract documents therein referred to and adopted by the City Council, all of which are made a part of this instrument as fully and completely as if set out in full herein.

NOW THEREFORE, if the said Contractor shall comply with the provisions of Paragraph 13.07 of the General Conditions, and correct work not in accordance with the Contract documents discovered within the established one-year period, then this obligation shall become null and void, and shall be of no further force and effect; otherwise, the same is to remain in full force and effect.

Notices required or permitted hereunder shall be in writing and shall be deemed delivered when actually received or, if earlier, on the third day following deposit in a United States Postal Service post office or receptacle, with proper postage affixed (certified mail, return receipt requested), addressed to the respective other party at the address prescribed in the Contract documents, or at such other address as the receiving party may hereafter prescribe by written notice to the sending party.

IN WITNESS THEREOF, the said Contractor and Surety have signed and sealed this instrument on the respective dates written below their signatures and have attached current Power of Attorney.

ATTEST, SEAL: (if a corporation)
WITNESS: (if not a corporation)

_____
Name of Contractor

By: _____
Name:
Title:

By: _____
Name:
Title:

Date:

ATTEST/SURETY WITNESS:

(SEAL)

Full Name of Surety

Address of Surety for Notice

Telephone Number of Surety

By: _____
Name:
Title:
Date:

By: _____
Name:
Title: Attorney-in-Fact
Date:

END OF DOCUMENT

Document 00620

AFFIDAVIT OF INSURANCE

BEFORE ME, the undersigned authority, on this day personally appeared

_____,who
Affiant

being by me duly sworn on his oath stated that he is _____, of
Title

_____,
Contractor's Company Name

the Contractor named and referred to within the Contract documents; that he is fully competent and authorized to give this affidavit and that the attached original insurance certificate truly and accurately reflects the insurance coverage that is now available and will be available during the term of the Contract.

_____
Affiant's Signature

SWORN AND SUBSCRIBED before me on _____.
Date

_____
Notary Public in and for the State of TEXAS

_____
Print or type Notary Public name

My Commission Expires: _____
Expiration Date

END OF DOCUMENT

The City of Tomball purchased rights (03/06/08) to utilize the Standard General Conditions of the Construction Contract prepared by Engineers Joint Contract Documents Committee (EJCDC) C-700, Copyright 2007 National Society of Professional Engineers. A copy of the EJCDC instruction and license agreement is attached for reference. A scanned copy of the EJCDC 00700 Standard General Conditions (2007) is also attached. Note that the City of Tomball has created required supplemental conditions included as Section 00800.

Mark A. McClure, P.E.
Director of Engineering & Planning

Engineers Joint Documents Committee
Design and Construction Related Documents
Instructions and License Agreement

Instructions

Before you use any EJCDC document:

1. Read the License Agreement. You agree to it and are bound by its terms when you use the EJCDC document.

2. Make sure that you have the correct version for your word processing software.

How to Use:

1. While EJCDC has expended considerable effort to make the software translations exact, it can be that a few document controls (e.g., bold, underline) did not carry over.

2. Similarly, your software may change the font specification if the font is not available in your system. It will choose a font that is close in appearance. In this event, the pagination may not match the control set.

3. If you modify the document, you must follow the instructions in the License Agreement about notification.

4. Also note the instruction in the License Agreement about the EJCDC copyright.

License Agreement

You should carefully read the following terms and conditions before using this document. Commencement of use of this document indicates your acceptance of these terms and conditions. If you do not agree to them, you should promptly return the materials to the vendor, and your money will be refunded.

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The license is effective until terminated. You may terminate it at any time by destroying **EJCDC Design and Construction Related Documents** altogether with all copies, modifications and merged portions in any form. It will also terminate upon conditions set forth elsewhere in this Agreement or if you fail to comply with any term or condition of this Agreement. You agree upon such termination to destroy **EJCDC Design and Construction Related Documents** along with all copies, modifications and merged portions in any form.

Limited Warranty:
EJCDC warrants the CDs and diskettes on which **EJCDC Design and Construction Related Documents** is furnished to be free from defects in materials and workmanship under normal use for a period of ninety (90) days from the date of delivery to you as evidenced by a copy of your receipt.

There is no other warranty of any kind, either expressed or implied, including, but not limited to the implied warranties of merchantability and fitness for a particular purpose. Some states do not allow the exclusion of implied warranties, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

EJCDC does not warrant that the functions contained in **EJCDC Design and Construction Related Documents** will meet your requirements or that the operation of **EJCDC Design and Construction Related Documents** will be uninterrupted or error free.

Limitations of Remedies:
EJCDC's entire liability and your exclusive remedy shall be:

1. the replacement of any document not meeting EJCDC's "Limited Warranty" which is returned to EJCDC's selling agent with a copy of your receipt, or

2. if EJCDC's selling agent is unable to deliver a replacement CD or diskette which is free of defects in materials and workmanship, you may terminate this Agreement by returning EJCDC Document and your money will be refunded.

In no event will EJCDC be liable to you for any damages, including any lost profits, lost savings or other incidental or consequential damages arising out of the use or inability to use **EJCDC Design and Construction Related Documents** even if EJCDC has been advised of the possibility of such damages, or for any claim by any other party.

Some states do not allow the limitation or exclusion of liability for incidental or consequential damages, so the above limitation or exclusion may not apply to you.

General:
You may not sublicense, assign, or transfer this license except as expressly provided in this Agreement. Any attempt otherwise to sublicense, assign, or transfer any of the rights, duties, or obligations hereunder is void.

This Agreement shall be governed by the laws of the State of Virginia. Should you have any questions concerning this Agreement, you may contact EJCDC by writing to:

Arthur Schwartz, Esq.
General Counsel
National Society of Professional Engineers
1420 King Street
Alexandria, VA 22314

Phone: (703) 684-2845
Fax: (703) 836-4875
e-mail: aschwartz@nspe.org

You acknowledge that you have read this agreement, understand it and agree to be bound by its terms and conditions. You further agree that it is the complete and exclusive statement of the agreement between us which supersedes any proposal or prior agreement, oral or written, and any other communications between us relating to the subject matter of this agreement.

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by

AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AMERICAN SOCIETY OF CIVIL ENGINEERS

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Endorsed by

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EJCDC C-700 Standard General Conditions of the Construction Contract
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These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. ***Addenda***—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. ***Agreement***—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. ***Application for Payment***—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. ***Asbestos***—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. ***Bid***—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. ***Bidder***—The individual or entity who submits a Bid directly to Owner.

7. ***Bidding Documents***—The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. ***Bidding Requirements***—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.

9. ***Change Order***—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. ***Claim***—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. ***Contract***—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

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12. ***Contract Documents***—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. ***Contract Price***—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. ***Contract Times***—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. ***Contractor***—The individual or entity with whom Owner has entered into the Agreement.

16. ***Cost of the Work***—See Paragraph 11.01 for definition.

17. ***Drawings***—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. ***Effective Date of the Agreement***—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. ***Engineer***—The individual or entity named as such in the Agreement.

20. ***Field Order***—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. ***General Requirements***—Sections of Division 1 of the Specifications.

22. ***Hazardous Environmental Condition***—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.

23. ***Hazardous Waste***—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. ***Laws and Regulations; Laws or Regulations***—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. ***Liens***—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. ***Milestone***—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

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27. ***Notice of Award***—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. ***Notice to Proceed***—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. ***Owner***—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. ***PCBs***—Polychlorinated biphenyls.

31. ***Petroleum***—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. ***Progress Schedule***—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. ***Project***—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. ***Project Manual***—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. ***Radioactive Material***—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. ***Resident Project Representative***—The authorized representative of Engineer who may be assigned to the Site or any part thereof.

37. ***Samples***—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

38. ***Schedule of Submittals***—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

39. ***Schedule of Values***—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

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40. ***Shop Drawings***—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

41. ***Site***—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

42. ***Specifications***—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

43. ***Subcontractor***—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

44. ***Substantial Completion***—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

45. ***Successful Bidder***—The Bidder submitting a responsive Bid to whom Owner makes an award.

46. ***Supplementary Conditions***—That part of the Contract Documents which amends or supplements these General Conditions.

47. ***Supplier***—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.

48. ***Underground Facilities***—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

49. ***Unit Price Work***—Work to be paid for on the basis of unit prices.

50. ***Work***—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. ***Work Change Directive***—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

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addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 ***Terminology***

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. ***Intent of Certain Terms or Adjectives:***

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. ***Day:***

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. ***Defective:***

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

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E. ***Furnish, Install, Perform, Provide:***

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. ***Evidence of Insurance:*** Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

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2.04 ***Starting the Work***

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 ***Before Starting Construction***

A. ***Preliminary Schedules:*** Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 ***Preconstruction Conference; Designation of Authorized Representatives***

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 ***Initial Acceptance of Schedules***

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on

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Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

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3.03 ***Reporting and Resolving Discrepancies***

A. ***Reporting Discrepancies:***

1. ***Contractor's Review of Contract Documents Before Starting Work***: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. ***Contractor's Review of Contract Documents During Performance of Work***: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation , (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. ***Resolving Discrepancies:***

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

   a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or

   b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 ***Amending and Supplementing Contract Documents***

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

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1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

3.05 ***Reuse of Documents***

A. Contractor and any Subcontractor or Supplier shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or

2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 ***Electronic Data***

A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

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ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 ***Availability of Lands***

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 ***Subsurface and Physical Conditions***

A. ***Reports and Drawings:*** The Supplementary Conditions identify:

1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. ***Limited Reliance by Contractor on Technical Data Authorized:*** Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

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4.03 ***Differing Subsurface or Physical Conditions***

A. ***Notice:*** If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. ***Engineer's Review***: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. ***Possible Price and Times Adjustments:***

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

   b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

   a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

   b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and

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contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 ***Underground Facilities***

A. ***Shown or Indicated:*** The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data;

b. locating all Underground Facilities shown or indicated in the Contract Documents;

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. ***Not Shown or Indicated:***

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the

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consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 ***Reference Points***

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 ***Hazardous Environmental Condition at Site***

A. ***Reports and Drawings:*** The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.

B. ***Limited Reliance by Contractor on Technical Data Authorized:*** Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

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C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

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H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also

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meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 ***Certificates of Insurance***

A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.

E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 ***Contractor's Insurance***

A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

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a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

6. include completed operations coverage:

a. Such insurance shall remain in effect for two years after final payment.

b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

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5.05 ***Owner's Liability Insurance***

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 ***Property Insurance***

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors,

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members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 ***Waiver of Rights***

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

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1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 ***Receipt and Application of Insurance Proceeds***

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 ***Acceptance of Bonds and Insurance; Option to Replace***

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's

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interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 ***Partial Utilization, Acknowledgment of Property Insurer***

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.01 ***Supervision and Superintendence***

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 ***Labor; Working Hours***

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 ***Services, Materials, and Equipment***

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

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B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 ***Progress Schedule***

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 ***Substitutes and "Or-Equals"***

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. ***"Or-Equal" Items:*** If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

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2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and

3) it has a proven record of performance and availability of responsive service.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. ***Substitute Items:***

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,

b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

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c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

3) will identify:

a) all variations of the proposed substitute item from that specified, and

b) available engineering, sales, maintenance, repair, and replacement services; and

4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

B. ***Substitute Construction Methods or Procedures:*** If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. ***Engineer's Evaluation:*** Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. ***Special Guarantee:*** Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. ***Engineer's Cost Reimbursement***: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. ***Contractor's Expense***: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be

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required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor

2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner,

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Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

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6.09 ***Laws and Regulations***

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 ***Taxes***

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 ***Use of Site and Other Areas***

A. ***Limitation on Use of Site and Other Areas:***

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought

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by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. ***Removal of Debris During Performance of the Work:*** During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. ***Cleaning:*** Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. ***Loading Structures:*** Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 ***Record Documents***

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 ***Safety and Protection***

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and

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shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is

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required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 ***Shop Drawings and Samples***

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

1. ***Shop Drawings:***

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. ***Samples:***

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. ***Submittal Procedures:***

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

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2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. ***Engineer's Review:***

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. ***Resubmittal Procedures:***

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

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6.19 ***Contractor's General Warranty and Guarantee***

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 ***Indemnification***

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

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B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

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E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

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B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 ***Legal Relationships***

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.

C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 ***Communications to Contractor***

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 ***Replacement of Engineer***

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 ***Furnish Data***

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 ***Pay When Due***

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 ***Lands and Easements; Reports and Tests***

A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 ***Insurance***

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

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8.07 ***Change Orders***

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 ***Inspections, Tests, and Approvals***

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 ***Limitations on Owner's Responsibilities***

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 ***Undisclosed Hazardous Environmental Condition***

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 ***Evidence of Financial Arrangements***

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 ***Compliance with Safety Program***

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 ***Owner's Representative***

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 ***Visits to Site***

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or

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continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 ***Project Representative***

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 ***Authorized Variations in Work***

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 ***Rejecting Defective Work***

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

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9.06 ***Shop Drawings, Change Orders and Payments***

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 ***Determinations for Unit Price Work***

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 ***Decisions on Requirements of Contract Documents and Acceptability of Work***

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 ***Limitations on Engineer's Authority and Responsibilities***

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not

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exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 ***Compliance with Safety Program***

A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 ***Authorized Changes in the Work***

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

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10.02 ***Unauthorized Changes in the Work***

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 ***Execution of Change Orders***

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 ***Notification to Surety***

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 ***Claims***

A. ***Engineer's Decision Required***: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. ***Notice:*** Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data

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shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. ***Engineer's Action***: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part;

2. approve the Claim; or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. ***Costs Included:*** The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

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1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

    c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of

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said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. ***Costs Excluded:*** The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not

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limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. ***Contractor's Fee:*** When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

D. ***Documentation:*** Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 ***Allowances***

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. ***Cash Allowances:***

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. ***Contingency Allowance:***

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 ***Unit Price Work***

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to

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the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

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C. ***Contractor's Fee:*** The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

   a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

   b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

   c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

   d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

   e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

   f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 ***Change of Contract Times***

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 ***Delays***

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or

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neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

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13.03 ***Tests and Inspections***

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 ***Uncovering Work***

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

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C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

13.05 ***Owner May Stop the Work***

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 ***Correction or Removal of Defective Work***

A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 ***Correction Period***

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

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1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 ***Acceptance of Defective Work***

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

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13.09 ***Owner May Correct Defective Work***

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 ***Schedule of Values***

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 ***Progress Payments***

A. ***Applications for Payments:***

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an

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Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. ***Review of Applications:***

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and

   c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or

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involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

   a. to supervise, direct, or control the Work, or

   b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

   c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

   d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

   e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

   a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

   b. the Contract Price has been reduced by Change Orders;

   c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

   d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. ***Payment Becomes Due:***

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

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D. ***Reduction in Payment:***

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

   a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

   b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

   c. there are other items entitling Owner to a set-off against the amount recommended; or

   d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 ***Contractor's Warranty of Title***

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 ***Substantial Completion***

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before

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final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 ***Partial Utilization***

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

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4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 ***Final Inspection***

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

14.07 ***Final Payment***

A. ***Application for Payment:***

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;

   b. consent of the surety, if any, to final payment;

   c. a list of all Claims against Owner that Contractor believes are unsettled; and

   d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. ***Engineer's Review of Application and Acceptance:***

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying

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documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. ***Payment Becomes Due:***

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 ***Final Completion Delayed***

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 ***Waiver of Claims***

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

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ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 ***Owner May Suspend Work***

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 ***Owner May Terminate for Cause***

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's repeated disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when

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so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 ***Owner May Terminate For Convenience***

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 ***Contractor May Stop Work or Terminate***

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days

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to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or

3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

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1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 ***Computation of Times***

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 ***Cumulative Remedies***

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 ***Survival of Obligations***

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 ***Controlling Law***

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 ***Headings***

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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SUPPLEMENTARY CONDITIONS
SECTION 00800

SUPPLEMENTARY CONDITIONS
(TO ACCOMPANY STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT, EJCDC NO. C-700 [2007 EDITION] FOR CITY OF TOMBALL CONSTRUCTION PROJECTS)

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SECTION 00800

SUPPLEMENTARY CONDITIONS

PART I AMENDMENTS TO GENERAL CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (General Conditions) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

ARTICLE 1 DEFINITIONS

SC-1.01

The terms used in these Supplementary Conditions which are defined in the Standard General Conditions of the Construction Contract (General Conditions) have the meanings assigned to them in the General Conditions.

Amend Paragraph 1.01.A.19, Engineer, of the General Conditions by adding the following to the end:

"For this project the following named persons, firms, or corporations have been utilized by ENGINEER to furnish services as a consultant with respect to the project (if blank, none have been utilized by the ENGINEER):

1. Apex Engineering (Elec & Inst)
2. _____
3. _____"

ARTICLE 2 PRELIMINARY MATTERS

SC-2.02

Amend the first sentence of Paragraph 2.02.A of the General Conditions to read as follows:

"Five sets of the Contract Documents shall be furnished to the CONTRACTOR, at no charge, for construction purposes."

And so amended, Paragraph 2.02 remains in effect.

SC-2.03

In Paragraph 2.03 of the General Conditions, the Contract Times commence to run no later than the 90 days after the bids are opened, in lieu of 60 days.

ARTICLE 4 AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS, REFERENCE POINTS

SC-4.02

In the preparation of Drawings and Specifications, ENGINEER or ENGINEER's Consultants have relied upon:

4.02.A.1 The following reports of exploration and tests of subsurface conditions at the site of the Work (if blank, no reports or tests were used by ENGINEER or ENGINEER's Consultants):

1. _____
2. _____

The technical data contained in such reports upon which the CONTRACTOR may rely is _____.

4.02.A.2 The following drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the site of Work:

1. _____
2. _____
3. _____

All of the information in such drawings constitutes technical data on which CONTRACTOR may rely with the following exceptions: _____
_____
_____

Copies of these reports and drawings that are not included with the Bidding Documents may be examined at the office of the ENGINEER during regular business hours. These reports and drawings are not part of the Contract Documents, but the technical data contained therein upon which CONTRACTOR is entitled to rely as provided in GC-4.02.B and as identified and established above are incorporated therein by reference. CONTRACTOR is not entitled to rely upon other information and data utilized by ENGINEER.

SC-4.06

Delete Paragraph 4.06.G of the General Conditions in its entirety.

ARTICLE 5 BONDS AND INSURANCE

SC-5.01

Delete Paragraphs 5.01.A and 5.01.B of the General Conditions in their entirety and insert the following in their place:

"A. The Successful Bidder must furnish with the executed Contract Documents a Performance Bond and a Payment Bond on the forms furnished with the Contract Documents, each in the amount of 100% of the total Contract Price. CONTRACTOR shall also furnish such other Bonds as are required by the Supplementary Conditions. The surety company must be authorized to do business in Texas, which authorization must be recorded in the files of the State Board of Insurance. The surety company must be authorized to issue Payment and Performance Bonds in the amount required for the particular Contract, which authorization must be recorded in the files of the State Board of Insurance. The surety company must have a rating of at least "B" in the current Best's Key Rating Guide, or if the surety company does not have such a rating due to the length of time it has existed, the surety company must be eligible to participate in the surety bond guarantee program of the Small Business Administration and must be an approved surety listed in the current U.S. Department of Treasury Circular 570, and must meet all of the related rules and regulations of the Treasury Department. The person executing the Payment and Performance Bonds must be a licensed Texas local recording agent, and such licensing must be recorded in the files of the State Board of Insurance. The person executing the Payment and Performance Bonds must be authorized by the surety company to execute Payment and Performance Bonds on behalf of the company in the amount required for the Contract, and such authorization must be recorded in the files of the State Board of Insurance. The Contract shall not be in effect until such Bonds have been provided by the CONTRACTOR and accepted by the OWNER."

SC-5.04

The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

Worker's Compensation

(1) State: Statutory
(2) Applicable Federal (e.g., Longshoreman's): Statutory
(3) Employer's Liability:

$500,000	Each Accident
$500,000	Disease - Policy Limit
$500,000	Disease - Each Employee

Commercial General Liability

(1) General Aggregate Limit (other than products-completed operations) coverage must include Explosion, Collapse, and Underground Coverages	$1,000,000
(2) Products-Completed Operations Aggregate Limit	$1,000,000
(3) Each Occurrence Limit	$ 500,000

Commercial Automobile Liability

$500,000	Any One Loss or Accident

Umbrella Liability

$1,000,000	Excess Limit

Shortages in coverage in any of the areas listed above may be covered by additional umbrella coverage.

SC-5.06

Delete Paragraphs 5.06, 5.07, and 5.08 of the General Conditions in their entirety.

SC-5.09

Delete Paragraph 5.09 of the General Conditions in its entirety and insert the following in its place:

"A. If OWNER has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by CONTRACTOR in accordance with Article 5 on the basis of its not complying with the Contract Documents, OWNER shall notify CONTRACTOR in writing. OWNER and CONTRACTOR shall each provide to the other such information in respect of insurance provided by each as the other may reasonably request."

ARTICLE 6 CONTRACTOR'S RESPONSIBILITIES

SC-6.06

Delete Paragraph 6.06.G of the General Conditions in its entirety and insert the following in its place:

"G. All Work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate Agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER."

Add a new paragraph immediately after Paragraph 6.06.G of the General Conditions which is to read as follows:

"6.06.H OWNER or ENGINEER may furnish to any such Subcontractor, Supplier, or other person or organization, to the extent practicable, information about amounts paid to CONTRACTOR in accordance with CONTRACTOR's Applications for Payment on account of the particular Subcontractor's, Supplier's, other person's, or other organization's Work."

SC-6.10

Delete Paragraph 6.10 of the General Conditions in its entirety and insert the following in its place:

"A. The CONTRACTOR's attention is directed to Paragraph No. 3 of Ruling No. 9, Repairmen and Contractors (as amended) issued by the Comptroller of Public Accounts. Reference Article 20.01 (T), Limited Sales, Excise, and Use Tax and to subsequent applicable legislation. The OWNER requires that no sales tax be paid on any materials incorporated into the completed Work on this Project. All Bidders and their respective Subcontractors must comply with Paragraph No. 3 of Ruling No. 9 by obtaining the necessary permit or permits from the State Comptroller allowing the purchase of materials for incorporation into this Project without having to pay the Limited Sales, Excise, and Use Tax at the time of purchase. Total materials cost should not include

materials which are used up or consumed in performing the Work, but which do not become a part of this proposed Work."

SC-6.16

Amend the third sentence of Paragraph 6.16 of the General Conditions to read as follows:

"If ENGINEER and OWNER determine that a change in the Contract Documents is required because of the action taken by CONTRACTOR in response to such an emergency, a Work Change Directive or Change Order will be issued."

And so amended, Paragraph 6.16 remains in effect.

SC-6.22

Amend Article 6 of the General Conditions by inserting the following Paragraph 6.22:

"6.22 LOSSES FROM NATURAL CAUSES:

A. All loss or damage to the CONTRACTOR arising out of the nature of the Work to be done, or from the action of the elements, or from any unforeseen circumstance in the prosecution of the same, or from unusual obstructions or difficulties which may be encountered in the prosecution of the Work, shall be sustained and borne by the CONTRACTOR at his own cost and expense."

ARTICLE 7 OTHER WORK

SC-7.02

Delete Paragraphs 7.02.A and 7.02.B of the General Conditions in their entirety and insert the following in its place:

"A. If OWNER contracts with others for the performance of other Work on the Project at the site, the person or organization who will have authority and responsibility for coordination of the activities among the various prime contractors shall be the OWNER's Representative. The extent of the authority and responsibility of the OWNER's Representative will be as specified in the Contract Documents."

SC-7.03

Add a new paragraph following 7.02 of the General Conditions which is to read as follows:

"SC-7.03 Should CONTRACTOR cause damage to the work or property of any separate contractor at the site, or should any claim arising out of CONTRACTOR's performance of the Work at the site be made by any separate contractor against CONTRACTOR, OWNER, ENGINEER, ENGINEER's Consultants, the Construction Coordinator, or any other person, CONTRACTOR shall promptly attempt to settle with such other contractor by agreement, or to otherwise resolve the dispute by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER, ENGINEER,

ENGINEER's Consultants, and the Construction Coordinator harmless from and against all claims, damages, losses, and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals, and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any separate contractor against OWNER, ENGINEER, ENGINEER's Consultants or the Construction Coordinator to the extent based on a claim arising out of CONTRACTOR's performance of the Work. Should a separate contractor cause damage to the Work or property of CONTRACTOR or should the performance of Work by any separate contractor at the site give rise to any other claim, CONTRACTOR shall not institute any action, legal or equitable, against OWNER, ENGINEER, ENGINEER's Consultants, or the Construction Coordinator or permit any action against any of them to be maintained and continued in its name or for its benefit in any court or before any arbiter which seeks to impose liability on or to recover damages from OWNER, ENGINEER, ENGINEER's Consultants, or the Construction Coordinator on account of any such damage or claim. If CONTRACTOR is delayed at any time in performing or furnishing Work by any act or neglect of a separate contractor and OWNER and CONTRACTOR are unable to agree as to the extent of any adjustment in Contract Times attributable thereto, CONTRACTOR may make a claim for an extension of times in accordance with Article 12. An extension of the Contract Times shall be CONTRACTOR's exclusive remedy with respect to OWNER, ENGINEER, ENGINEER's Consultants, and Construction Coordinator for any delay, disruption, interference, or hindrance caused by any separate contractor. This paragraph does not prevent recovery from OWNER, ENGINEER, ENGINEER's Consultant, or Construction Coordinator for activities that are their respective responsibilities.

ARTICLE 8 OWNER'S RESPONSIBILITIES

SC-8.02

Amend Paragraph 8.02 of the General Conditions to read as follows:

"In case of termination of the employment of ENGINEER, OWNER shall appoint an engineer whose status under the Contract Documents shall be that of the former ENGINEER."

And so amended, Paragraph 8.02 remains in effect.

SC-8.06

Delete Paragraph 8.06 of the General Conditions in its entirety.

ARTICLE 9 ENGINEER'S STATUS DURING CONSTRUCTION

SC-9.01

Amend the second sentence of Paragraph 9.01 of the General Conditions to read as follows:

"The duties and responsibilities and the limitations of authority of ENGINEER as OWNER's representative during construction are set forth in the Contract Documents and will not be changed except by written direction of OWNER."

And so amended, Paragraph 9.01 remains in effect.

SC-9.04

Delete the third sentence of Paragraph 9.04, Authorized Variations in Work, of the General Conditions in its entirety, and so amended, Paragraph 9.04 remains in effect.

ARTICLE 10 CHANGES IN THE WORK; CLAIMS

SC-10.03

Amend the first sentence of Paragraph 10.03.A of the General Conditions to read as follows:

"OWNER and CONTRACTOR shall, when appropriate, execute Change Orders recommended by ENGINEER (or Written Amendments) covering:"

And so amended, Paragraph 10.03 remains in effect.

SC-10.05

Amend the first sentence of Paragraph 10.05.B., Claims – Notice, of the General Conditions shall be amended by changing “”30 days” to read ”fourteen (14) calendar days”

Amend Paragraph 10.05.E by deleting it in its entirety.

And so amended, Paragraph 10.05 remains in effect.

ARTICLE 13 TESTS AND INSPECTIONS; CORRECTIONS, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

SC-13.04

Amend the first sentence of Paragraph 13.04.B of the General Conditions to read as follows:

"If ENGINEER considers it necessary or advisable that covered Work be observed by ENGINEER or inspected or tested by others, CONTRACTOR, at ENGINEER's request and with OWNER's written approval, shall uncover, expose, or otherwise make available for observation, inspection, or testing as ENGINEER may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment."

And so amended, Paragraph 13.04 remains in effect.

SC-13.07

Delete Paragraph 13.07.D of the General Conditions in its entirety and insert the following in its place:

"D. Notwithstanding any other provision of this section or the Contract Documents to the contrary, this provision shall not serve to limit any causes of action which the OWNER may have against the CONTRACTOR for Defective Work or for otherwise failing to fulfill CONTRACTOR's obligations under the Contract Documents; nor shall this provision serve to limit the time in which such causes of action shall be asserted."

SC-13.09

Amend the second sentence of Paragraph 13.09.B of the General Conditions to read as follows:

"In connection with such corrective and remedial action, OWNER may exclude CONTRACTOR from all or part of the Site, take possession of all or part of the Work and suspend CONTRACTOR's services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere."

And so amended, Paragraph 13.09 remains in effect.

ARTICLE 14 PAYMENTS TO CONTRACTOR AND COMPLETION

SC-14.02

Amend Paragraph 14.02.D.1.b of the General Conditions to read as follows:

"Claims or Liens have been filed in connection with the Work, except where CONTRACTOR has delivered a specific Bond satisfactory to OWNER to secure the satisfaction and discharge of such Liens;"

Add Paragraph 14.02.D.1.e to the General Conditions to read as follows:

"OWNER concludes that one or more of the events enumerated in Paragraph 14.02.B.2.a through 14.02.B.2.c have not occurred."

And so amended, Paragraph 14.02 remains in effect.

SC-14.03

Amend Paragraph 14.03.A of the General Conditions to read as follows:

"CONTRACTOR warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to OWNER no later than the time of payment free and clear of all Liens or Claims."

And so amended, Paragraph 14.03 remains in effect.

SC-14.04

Insert prior to the first sentence of Paragraph 14.04.A of the General Conditions the following:

"Substantial completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the OWNER can occupy or utilize the Work for its intended use."

And so amended, Paragraph 14.04 remains in effect.

SC-14.07

Amend Paragraph 14.07.A.2.(iii) of the General Conditions to read as follows:

"complete and legally effective releases or waivers (satisfactory to OWNER) of all Claim or Lien rights arising out of or Claims or Liens filed in connection with the Work."

Amend Paragraph 14.07.A.3 of the General Conditions to read as follows:

"In lieu of the releases or waivers of Liens and Claims specified in Paragraph 14.07.A.2 and as approved by OWNER, CONTRACTOR may furnish receipts or releases in full and an affidavit of CONTRACTOR that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien or Claim could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which OWNER or OWNER's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, CONTRACTOR may furnish a Bond or other collateral satisfactory to OWNER to indemnify OWNER against any Lien or Claim."

Amend Paragraph 14.07.C.1 of the General Conditions to read as follows:

"If OWNER concurs with ENGINEER's recommendation, thirty days after the presentation to OWNER of the Application for Payment and accompanying documentation, the amount recommended by ENGINEER will become due and, when due, will be paid by OWNER to CONTRACTOR."

And so amended, Paragraph 14.07 remains in effect.

SC-14.09

Amend Paragraph 14.09.A.1 of the General Conditions to read as follows:

"a waiver of all Claims by OWNER against CONTRACTOR, except Claims arising from unsettled Liens or Claims of laborers and materialmen, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from CONTRACTOR's continuing obligations under the Contract Documents; and"

And so amended, Paragraph 14.09 remains in effect.

ARTICLE 15 SUSPENSION OF WORK AND TERMINATION

SC-15.02

Amend Paragraph 15.02.A.1 of the General Conditions to read as follows:

"CONTRACTOR's failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);"

Amend the first sentence of Paragraph 15.02.B of the General Conditions to read as follows:

"If one or more of the events identified in Paragraph 15.02.A occur, OWNER may, after giving CONTRACTOR (and the surety, if any) seven days written notice, terminate the services of CONTRACTOR, exclude CONTRACTOR from the Site and take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which OWNER has paid CONTRACTOR but which are stored elsewhere, and finish the Work as OWNER may deem expedient."

And so amended, Paragraph 15.02 remains in effect.

SC-16.01

Amend Paragraph 16.01 A. of the General Conditions by deleting the second and third sentences in their entirety.

Amend Paragraph 16.01 B. of the General Conditions by deleting it in its entirety.

Amend "ARTICLE 17 MISCELLANEOUS PROVISIONS of the General Conditions to add the following provisions:

17.07 WAGE RATES. The prevailing wage rates for this project are included as Exhibit A to the Supplementary Conditions and are hereby made a part of the Contract Documents by reference. Wages not less than these rates must be paid on this project, including fringe benefits. The CONTRACTOR shall post the Prevailing Wage Rate Determination in a prominent and easily accessible location at the project site and shall abide by all associated laws and regulations pertaining thereto.

17.08 LIQUIDATED DAMAGES. The Owner will suffer financial loss in an amount that is difficult to quantify if the Project is not Substantially Completed on the date set forth in the Contract Documents. The Owner may assess liquidated damages against the Contractor (and its surety) in an amount equal to .5% of the Contract per week for each project, as fixed, agreed and liquidated damages and not a penalty, for each calendar day of delay until the Work is Substantially Completed. In the event liquidated damages are caused by the Contractor and another entity, the Owner may reasonably apportion damages. The right to assess liquidated damages is in addition to, and not in limitation of, any right or remedy available to the Owner."

17.09 VENUE. This Agreement is governed by the laws of the State of Texas. The parties agree that venue for any litigation arising out of this Agreement shall lie exclusively in the State and Federal Courts in Harris County, Texas.

17.10 NO THIRD PARTY BENEFICIARIES The signing parties to this agreement do not intend to confer any rights upon any persons not a party to this Contract; accordingly this contract shall not be construed to create any third party beneficiaries."

PART II OTHER PROVISIONS

The following additional items are attached to this section.

1. Exhibit A, Wage Rates
2. Exhibit B, Worker's Compensation Insurance Coverage
3. Exhibit C, A Listing of the Duties, Responsibilities, and Limitations of Authority of the Resident Project Representative
4. Exhibit D, Addenda (if any)
5. Exhibit E, Change Order (form)
6. Exhibit F, Application for Payment (form)
7. Exhibit G, Storm Water Pollution Prevention Plan

END OF SECTION 00800

EXHIBIT C
A Listing of the Duties, Responsibilities, and Limitations to Authority of the Resident Project Representative (RPR)

A. General

RPR as Owner's agent at the site, will act as directed by and under the supervision of the Owner, and will confer with ENGINEER regarding RPR's actions. RPR's dealings in matters pertaining to the on-site Work shall in general be with ENGINEER and CONTRACTOR keeping OWNER advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of CONTRACTOR. RPR shall generally communicate with OWNER with the knowledge of and under the direction of ENGINEER.

B. Duties and Responsibilities of RPR

1. Schedules:

Review the progress schedule, schedule of Shop Drawing submittals, and other required schedules prepared by CONTRACTOR and consult with ENGINEER concerning acceptability.

2. Conferences and Meetings:

Attend meetings with CONTRACTOR, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.

3. Liaison:

a. Serve as ENGINEER's liaison with CONTRACTOR, working principally through CONTRACTOR's superintendent, and assist in understanding of the Contract Documents, and assist ENGINEER in serving as OWNER's liaison with CONTRACTOR when CONTRACTOR's operations affect OWNER's on-site operations.

b. Assist in obtaining from OWNER additional details or information when required for proper execution of the Work.

4. Shop Drawings and Samples:

a. Record date of receipt of Shop Drawings and samples.

b. Receive samples, which are furnished at the site by CONTRACTOR, and notify ENGINEER of availability of samples for examination.

c. Advise ENGINEER and CONTRACTOR of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved by ENGINEER.

5. Review of Work, Rejection of Defective Work, Inspections, and Tests:

a. Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.

b. Report to ENGINEER whenever RPR believes that any Work is unsatisfactory, faulty or defective, or does not conform to the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test, or approval required to be made; and advise ENGINEER of Work that RPR believes should be corrected or rejected, or should be uncovered for observation, or requires special testing, inspection, or approval.

c. Verify that tests, equipment, and systems start-up and operating and maintenance training are conducted in the presence of appropriate personnel, and that CONTRACTOR maintains adequate records thereof; and observe, record, and report to ENGINEER appropriate details relative to the test procedures and start-ups.

d. Accompany visiting inspectors, other than the OWNER's, representing public or other agencies having jurisdiction over the Project, record the result of these inspections, and report to ENGINEER.

6. Interpretation of Contract Documents:

Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to Contract clarifications and interpretations as issued by the ENGINEER.

7. Modifications:

Consider and evaluate CONTRACTOR's suggestions, for modifications in Drawings or Specifications and report with RPR's recommendations to ENGINEER. Transmit to CONTRACTOR decisions as issued by ENGINEER.

8. Records:

a. Maintain at the job site orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, ENGINEER's clarification and interpretations of the Contract Documents, progress reports, and other Project-related documents.

b. Keep a diary or log book recording CONTRACTOR hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures, and send copies to ENGINEER.

c. Record names, addresses, and telephone numbers of all contractors, subcontractors, and major Suppliers of materials and equipment.

9. Reports:

a. Furnish ENGINEER periodic reports as required of progress of the Work and of CONTRACTOR's compliance with the progress schedule and schedule of Shop Drawings and sample submittals.

b. Consult with ENGINEER in advance of schedule of major tests, inspections, or start of important phases of the Work.

c. Draft proposed Change Orders and Work Directive Changes, obtaining back-up material from CONTRACTOR, and recommend to ENGINEER Change Orders, Work Directive Changes, and Field Orders.

d. Report immediately to OWNER and ENGINEER upon the occurrence of any accident.

10. Payment Requests:

Review Applications for Payment with CONTRACTOR for compliance with the established procedure for their submission and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of items, Work completed, and materials and equipment delivered at the site but not incorporated in the Work.

11. Certificates, Maintenance and Operation Manuals:

During the course of the Work, verify that certificates, maintenance and operation manuals, and other data required to be assembled and furnished by CONTRACTOR are applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to ENGINEER for review and forwarding to OWNER prior to final payment for Work.

12. Completion:

a. Before ENGINEER issues a Certificate of Substantial Completion, submit to CONTRACTOR a list of observed items requiring completion of correction.

b. Conduct final inspection in the company of ENGINEER, OWNER, and CONTRACTOR, and prepare a final list of items to be completed or corrected.

c. Observe that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

C. Limitations of Authority

Resident Project Representative:

1. Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment unless authorized by ENGINEER.

2. Shall not exceed limitations of authority as set forth in the Agreement or the Contract Documents.

3. Shall not undertake any of the responsibilities of CONTRACTOR, subcontractor, or CONTRACTOR's superintendent.

4. Shall not advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences, or procedures of construction unless such advice or directions are specifically required by the Contract Documents.

5. Shall not advise on, issue directions regarding, or assume control over safety precautions and programs in connection with the Work.

6. Shall not accept Shop Drawing or sample submittals from anyone other than CONTRACTOR.

7. Shall not authorize OWNER to occupy the Project in whole or in part.

8. Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by Owner.

Conflict of Interest Questionnaire

Exhibit H
"Section 00800"

City of Tomball

Gretchen Fagan
Mayor

February 7, 2008

Attention: Vendors, Agents, Contractors, Prospective Bidders, Etc.

Re: House Bill 914 – Adding Chapter 176.2 to the Local Government Code

In the 2005 Regular Session, the Texas Legislature passed House Bill 914, which requires the disclosure and availability of information concerning certain local government entities, local government officials, and vendors or other persons, agencies, corporations, or entitises contracting or seeking to contract with the City of Tomball for the sale or purchase of property, goods or services.

As a courtesy, enclosed is a copy of the Conflict of Interest Questionnaire (CIQ), a copy of HB 914, and a list of all City officials, as defined under Chapter 176 of the Local Government Code. Please complete this questionnaire and return to the City Secretary as soon as possible at the following address:

CIQ
Attention: City Secretary
City of Tomball
401 Market Street
Tomball, Texas 77375.

If you need additional information regarding the new requirements, please contact your attorney for additional instructions. You may also contact me at 281-290-1002 or dspeer@ci.tomball.tx.us.

Sincerely,

Doris Speer
City Secretary

Enclosure

CONFLICT OF INTEREST QUESTIONNAIRE

FORM CIQ

For vendor or other person doing business with local governmental entity

This questionnaire reflects changes made to the law by H.B. 1491, 80th Leg., Regular Session.

This questionnaire is being filed in accordance with Chapter 176, Local Government Code by a person who has a business relationship as defined by Section 176.001(1-a) with a local governmental entity and the person meets requirements under Section 176.006(a).

By law this questionnaire must be filed with the records administrator of the local governmental entity not later than the 7th business day after the date the person becomes aware of facts that require the statement to be filed. *See* Section 176.006, Local Government Code.

A person commits an offense if the person knowingly violates Section 176.006, Local Government Code. An offense under this section is a Class C misdemeanor.

OFFICE USE ONLY

Date Received

1 **Name of person who has a business relationship with local governmental entity.**

2 ☐ **Check this box if you are filing an update to a previously filed questionnaire.**

(The law requires that you file an updated completed questionnaire with the appropriate filing authority not later than the 7th business day after the date the originally filed questionnaire becomes incomplete or inaccurate.)

3 **Name of local government officer with whom filer has employment or business relationship.**

_____

Name of Officer

This section (item 3 including subparts A, B, C & D) must be completed for each officer with whom the filer has an employment or other business relationship as defined by Section 176.001(1-a), Local Government Code. Attach additional pages to this Form CIQ as necessary.

A. Is the local government officer named in this section receiving or likely to receive taxable income, other than investment income, from the filer of the questionnaire?

☐ Yes ☐ No

B. Is the filer of the questionnaire receiving or likely to receive taxable income, other than investment income, from or at the direction of the local government officer named in this section AND the taxable income is not received from the local governmental entity?

☐ Yes ☐ No

C. Is the filer of this questionnaire employed by a corporation or other business entity with respect to which the local government officer serves as an officer or director, or holds an ownership of 10 percent or more?

☐ Yes ☐ No

D. Describe each employment or business relationship with the local government officer named in this section.

4

_____ _____

Signature of person doing business with the governmental entity Date

Adopted 06/29/2007

Document 00931

REQUEST FOR INFORMATION

1. PROJECT No.: 2011-002 2. RFI No.: _____
3. PROJECT NAME: South WWTP Headworks Replacement
4. CONTRACTOR: _____
5. CONTRACT No.: _____
6. SPECIFICATION Nos.: _____
7. DRAWING Nos.: _____
8. RESPONSE CODE: [__] CRITICAL [__] ROUTINE 9. DATE RESPONSE REQUIRED: _____
10. INFORMATION REQUIRED:

11. _____ _____
CONTRACTOR (Signature) TITLE DATE

12. RESPONSE:

13. _____ _____
PROJECT MANAGER (Signature) DATE

14. If Contractor believes the response given in Item 12 requires an adjustment in Contract Price or Contract Time, Contractor shall submit a timely proposal so as not to delay Contractor's Work in accordance with General Conditions, Article 7 - Changes in the Work.

END OF DOCUMENT

DIVISION 1

SECTION 01110

SUMMARY OF WORK

PART 1 - GENERAL

1.1 LOCATION AND DESCRIPTION OF WORK

A. The Work covers the construction of a new perforated plate screen, washer/compactor, associated piping and control panels. In addition, performing related required work, located as shown on these Drawings and Specifications.

B. The Project features sole-source pre-purchase by the OWNER of some of the major equipment. The CONTRACTOR shall be responsible for the acceptance, handling, installation and startup of this and all other equipment for the Project.

C. The Work is located at the City of Tomball – South Wastewater Treatment Plant:
12411 Holderrieth Rd.
Tomball, TX 77375

D. The Work will be constructed under one contract. The Contract Documents include the following:
1. Volume 1 – Bid Documents and Specifications.
2. Volume 2 – Drawings

1.2 COORDINATION

A. The CONTRACTOR shall be solely responsible for coordination of all of the Work of this Contract.

B. The CONTRACTOR shall supervise, direct and cooperate fully with all Subcontractors, manufacturers, fabricators, suppliers, distributors, installers, testing agencies and all others whose services, materials or equipment are required to ensure completion of the Work within the Contract Time.

C. Work of Others:
1. The CONTRACTOR shall cooperate with and coordinate CONTRACTOR's Work with the work of any other contractor, utility service companies, or OWNER's employees performing work at the site.
2. The CONTRACTOR shall also coordinate their Work with the work of others to assure compliance with schedules.
3. The CONTRACTOR shall attend and participate in all project coordination or progress meetings and report on the progress of all Work and compliance with schedules.
4. If any part of the work depends upon the work of others for proper execution or results, the CONTRACTOR shall inspect and promptly report to the ENGINEER any apparent discrepancies or defects in such work of others that render it unsuitable for such proper execution and results.
5. Failure of the CONTRACTOR to so inspect and report shall constitute an acceptance of the work of others as fit and proper except as to defects which may develop in the work of others after execution of the work by the CONTRACTOR.

D. Interference with work on utilities:
   1. The CONTRACTOR shall cooperate fully with all utility forces of the OWNER or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the work.
   2. The CONTRACTOR shall schedule the work so as to minimize interference with said relocation, altering, or other rearranging of facilities.

E. Responsibility for Damage:
   1. The CONTRACTOR shall not be responsible for damage done by CONTRACTORs not under their jurisdiction.
   2. The CONTRACTOR will not be liable for any such loss or damage, unless it is through the negligence of the CONTRACTOR.

1.3 WORK BY OTHERS

A. OWNER will perform the following work:
   1. Operation of all existing system valves and equipment, unless specified otherwise.
   2. Demolition and removal of the existing screen and conveyor (salvage discharge chute for use by contractor).

1.4 SITE CONDITIONS

A. Site Investigation and Representation
   1. The CONTRACTOR acknowledges that it has satisfied itself as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads, and uncertainties of weather, tide stages, or similar physical conditions at the site, the conformation and conditions of the ground, the character of equipment and facilities needed preliminary to and during the prosecution of the work and all other matters which can in any way affect the work or the cost thereof under this Contract.
   2. The CONTRACTOR further acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials to be encountered from inspecting the site and from evaluating information derived from exploratory work that may have been done by the OWNER or included in these Contract Documents. Any failure by the CONTRACTOR to become acquainted with all the available information will not relieve the CONTRACTOR from responsibility for properly estimating the difficulty or cost of successfully performing the work.
   3. Field Verification:
      a. Before undertaking each part of the work, the CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements.
      b. As the work proceeds, the CONTRACTOR shall field verify the depth and location of all buried utilities, and existing systems, and location of hazardous waste and contaminants.
      c. The CONTRACTOR shall promptly report in writing to the ENGINEER any conflict, error, or discrepancy which the CONTRACTOR may discover and shall obtain a written interpretation or clarification from the ENGINEER before proceeding with any work affected thereby.

B. Existing Utilities and Improvements
   1. Location of Underground Utilities:

a. Known existing underground conduits, pipelines and other utilities have been shown on the contract drawings in their approximate locations (within 3 feet of actual location). However, the accuracy or completeness of utilities indicated on the drawings is not guaranteed.
b. It shall be the responsibility of the CONTRACTOR to determine the exact location of all utilities and their service connections.
c. All potholing or other procedures for verifying utility location shall be performed by the CONTRACTOR as necessary to prepare for excavation at least 4 working days in advance of scheduled excavation.
d. The CONTRACTOR shall immediately notify the ENGINEER as to any utility located by him which has been incorrectly shown or omitted from the drawings.
e. If the CONTRACTOR cannot locate an underground utility whose presence is indicated on the Drawings, the ENGINEER shall be notified in writing.
f. The CONTRACTOR shall ascertain the exact locations of underground utilities whose presence is indicated on the Drawings, the locations of their service laterals work and of service laterals or appurtenances of any other underground utilities which can be inferred from the presence of visible facilities such as buildings, meters and junction boxes prior to doing work that may damage such utilities or interfere with their service.
g. Utilities Not Shown on Drawings:
    1) Attention is directed to the possible existence of underground utilities not indicated on the Drawings and to the possibility that underground utilities may be in a location different from that indicated on the Drawings.
    2) If the ENGINEER determines that the underground utility for which such notice has been given has not been depicted on the Drawings with reasonable accuracy (within 3 feet of actual location), the additional cost incurred in locating the utility will be paid for as extra work as provided in the General Conditions.
    3) If the CONTRACTOR discovers underground an utility not indicated on the Drawings, the CONTRACTOR shall immediately give the ENGINEER and the Utility Company written notification of the existence of such utility.
    4) Such utilities shall be located and protected from damages as directed by the ENGINEER and the cost of such work will be paid for as extra work as provided in the General Conditions.

2. Utility Coordination:
    a. The CONTRACTOR shall notify Underground Service Alert (USA) at least 4 days prior to excavation, telephone (800) 642-2444.
    b. The CONTRACTOR shall also contact all utility owners not registered with USA but known to have utilities in the project area to field locate underground utilities at least 4 days prior to excavation.
    c. The CONTRACTOR shall notify all owners of utilities when the Work is in progress and shall make arrangements as are necessary to make any emergency repairs.
    d. Existing utilities that are shown or that are made known and located to the CONTRACTOR prior to excavation, and that are to be retained; and all utilities that are constructed during excavation operations shall be properly supported and protected from damage during the progress of the work.
3. Utility Protection and Damage:
    a. Existing utilities that are shown or that are made known and located to the CONTRACTOR prior to excavation, and that are to be retained, and all utilities that are constructed during excavation operations shall be properly supported and protected from damage during the progress of the work.

b. Should any damage to a utility occur during the progress of the work, the CONTRACTOR shall notify the OWNER or the utility at once and render all assistance possible to repair the damage and restore the service.
c. No extra compensation will be made for the repair of any services or utility damaged by the CONTRACTOR nor for any damage incurred through neglect or failure to provide adequate protection to existing utilities.
d. The provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.
e. Damaged water pipelines will be repaired by the OWNER at the CONTRACTOR's expense. If the CONTRACTOR fails to pay the cost of repairs to water pipelines within thirty days of receipt of the invoice, the OWNER reserves the right to withhold the amount owed from the CONTRACTOR's Progress Payment.
f. Damage Report:
    1) In the event that the CONTRACTOR damages any underground utilities not shown on the Drawings or not depicted on the Drawings with reasonable accuracy (within 3 feet of actual location) or any lateral service the location of which could not be inferred by the CONTRACTOR, a written report thereof shall be made immediately to the ENGINEER.
    2) The CONTRACTOR's report shall also advise the ENGINEER of any schedule delays. Compensation for such delays will be determined in accordance with the General Conditions. The CONTRACTOR shall be entitled to no other compensation for any such damage.

4. All utilities encountered along the line of the work shall remain continuously in service during all work under the Contract, unless otherwise shown on the drawings, or unless other arrangements satisfactory to the ENGINEER are made with the owner of said utilities.

C. CONTRACTOR's Responsibility for Utility Facilities and Service
1. Where the CONTRACTOR's operations could cause damage or inconvenience to railway, telephone, television, power, oil, gas, water, sewer, or irrigation systems, the CONTRACTOR shall make all arrangements necessary for the protection of these utilities and services.
2. The CONTRACTOR shall be solely and directly responsible to the owner and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions, or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.
3. Neither the OWNER nor its officers or agents shall be responsible to the CONTRACTOR for damages as a result of the CONTRACTOR's failure to protect utilities encountered in the work.
4. In no event shall interruption of any utility service be allowed outside working hours unless granted by the owner of the utility.
5. No sand, mud, rocks or other construction debris shall be disposed of in the sanitary sewers or storm sewers.
6. Where bypassing of sewage is required to perform sewer repairs or service relocations and where temporary pumps are required to bypass any sewage across traffic lanes, the discharge lines crossing the traffic lanes shall be buried a minimum of 4 inches below the pavement surface and backfilled with temporary asphalt concrete surfacing. The CONTRACTOR shall take all necessary steps to assure continuous flow of sewage. Bypassing of untreated wastewater to surface waters or courses will not be permitted.

7. The CONTRACTOR shall replace, at its own expense, any and all existing utilities or structures removed or damaged during construction, to their existing condition unless otherwise provided for in these Contract Documents.
8. The CONTRACTOR shall repair or replace, at its own expense, all pavement damaged during the construction, to its existing condition unless otherwise provided for in these Contract Documents.

D. Interfering Structures
1. The CONTRACTOR shall take necessary precautions to prevent damage to existing structures whether on the surface, aboveground, or underground. An attempt has been made to show major structures on the Drawings. While the information has been compiled from the best available sources, its completeness and accuracy cannot be guaranteed, and it is presented as a guide to avoid possible difficulties.
2. The CONTRACTOR shall protect all existing structures, trees, shrubs, and other items on the project site that are to be preserved, by substantial barricades or other devices commensurate with the hazard, from injury or destruction by vehicles, equipment, workmen, or other agents.
3. Where existing fences, gates, buildings, or any other structure must be removed to properly carry out the work, or are damaged during the work, they shall be restored at the CONTRACTOR's expense to their original condition or better.
4. Without additional compensation, the CONTRACTOR may remove and replace in a condition as good as or better than original, any small structures such as fences, and signposts that interfere with the CONTRACTOR's operations.

E. Field Relocation
1. During the progress of construction, it is expected that minor relocations of the work will be necessary.
2. Such relocations shall be made only by direction of the ENGINEER.
3. If existing structures are encountered that will prevent construction as shown, notify the ENGINEER before continuing with the work in order that the ENGINEER may make such field revisions as necessary to avoid conflict with the existing structures.
4. If the CONTRACTOR shall fail to notify the ENGINEER when an existing structure is encountered, and shall proceed with the work despite this interference, CONTACTOR shall do so at their own risk.
5. Any CONTRACTOR request(s) for additional compensation or contract time resulting from necessary field relocations will be considered as set forth in the General Conditions.
6. If the CONTRACTOR fails to notify the ENGINEER when a structure which interferes with construction is encountered, and proceeds with the work despite this obstruction, the CONTRACTOR shall do so at their own risk and at no additional cost to the OWNER.

1.5 REFERENCE POINTS AND SURVEYS

A. Location and elevation of bench marks are shown on Drawings.

B. Dimensions for lines and elevations for grades of structures, appurtenances, and utilities are indicated on Drawings, together with other pertinent information required for laying out Work. If conditions vary from those indicated, notify OWNER immediately, who will make minor adjustments required.

C. OWNER may perform checks to verify accuracy of CONTRACTOR's layout Work and that completed Work complies with Contract Documents.

D. Any existing survey points or other control markers destroyed without proper authorization will be replaced by owner of the survey points or control markers at CONTRACTOR's expense.

E. CONTRACTOR's Responsibilities:
   1. Provide all survey and layout required.
   2. Locate and protect reference points prior to starting site preparation.
   3. Notify OWNER at least 3 working days in advance of time when grade and line to be provided by others will be needed.
   4. Check and establish exact location of existing facilities prior to construction of new facilities and any connections thereto.
   5. In event of discrepancy in data provided by OWNER, request clarification before proceeding with Work.
   6. Provide cut sheets for all staking.
   7. Preserve and leave undisturbed control staking until ENGINEER has completed checks it deems necessary.
   8. Re-establish reference points resulting from destruction by CONTRACTOR's operations.
   9. Cooperate with ENGINEER so that checking and measuring may be accomplished with least interference to CONTRACTOR's operations.

1.6 SEQUENCE AND PROGRESS OF WORK

A. The CONTRACTOR shall submit a Construction Schedule covering the entire Work in accordance with Section 01320, Progress Schedule.

B. The CONTRACTOR shall incorporate the requirements of Section 01130, Special Project Constraints, into the Construction Schedule.

C. Alternate Sequence:
   1. The CONTRACTOR’s schedule may use a different sequence from that shown or specified, if techniques and methods known to the CONTRACTOR will result in cost and time savings to the OWNER, still achieve the required objective and maintain the same or greater level of treatment.
   2. The ENGINEER’s determination on the acceptability of any alternative sequence from that shown or specified shall be final.

1.7 CONTRACTOR'S USE OF PREMISES

A. The CONTRACTOR shall coordinate use of the premises, for the CONTRACTOR’s storage and the operations of the CONTRACTOR’s workmen, with OWNER and utility service companies.

B. Restriction of Work Area:
   1. The full use of the premises for storage, the operations of workmen and for all other construction activities will not be available to the CONTRACTOR.
   2. The CONTRACTOR must operate entirely within the space allowed to him.
   3. The Drawings defines the area allocated to the CONTRACTOR.

C. The CONTRACTOR shall be solely responsible for obtaining and paying all costs in connection with any additional work area, storage sites, access to the site or temporary right-of-way, which may be required for proper completion of the Work.

D. Limitations on Use of Work Area:
   1. It shall be understood that responsibility for protection and safe-keeping of equipment and materials on or near the site will be entirely that of the CONTRACTOR and that no claim shall be made against the OWNER or their authorized representatives by reason of any act.
   2. It shall be further understood that should any occasion arise necessitating access to the sites occupied by these stored materials or equipment, the ENGINEER shall direct the CONTRACTOR owning or responsible for the stored materials and equipment to immediately move the same.
   3. No materials or equipment may be placed upon the property of the OWNER, other than in the designated areas as shown on the Drawings, unless the ENGINEER has agreed to the location contemplated by the CONTRACTOR to be used for storage.
   4. All stored materials shall be labeled according to the appropriate contractor or Subcontractor with the manufacturer's label as well.
   5. Appropriate material safety data sheets (e.g., MSDS) shall be provided.

E. The CONTRACTOR shall be required to share use of the premises with other Contractors whose services the OWNER has obtained or will obtain for construction of other facilities on the site.

1.8 USE OF OWNER'S FACILITIES

A. The CONTRACTOR may use existing facilities or equipment in the Work for construction purposes, only if the OWNER's written permission is obtained.

B. Restore existing facilities and equipment used for temporary purposes to original condition in a manner satisfactory to OWNER.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

++ END OF SECTION ++

SECTION 01130

SPECIAL PROJECT CONSTRAINTS

PART 1 - GENERAL

1.1 LIMIT OF CONSTRUCTION ACTIVITIES ON WORK SITE

A. Traffic Control:
   1. During non-work hours, the CONTRACTOR shall keep all lanes of traffic open and clear. All trenches shall be backfilled or covered with suitable steel plates and open to traffic.
   2. No equipment, construction material or excavated material that will interfere with traffic shall be stored on streets or roadways at any time.

1.2 SEQUENCE OF WORK

A. General:
   1. The CONTRACTOR shall schedule and sequence their work in order to complete the Work by the specified completion date.
   2. The OWNER's wastewater treatment plant must remain operational at all times.
   3. Re-vegetation of graded areas shall take place as quickly as possible as weather permits.

1.3 PROJECT CONSTRAINTS

A. Maintenance of OWNER's Operations:
   1. Constraints listed herein involve limits on activities during construction. These limits relate to the critical nature of the existing water system.
   2. Continuous operation of OWNER's facilities is of critical importance. Schedule and conduct activities to enable existing facilities to operate continuously, unless otherwise specified.
   3. Work Plan:
      a. The CONTRACTOR shall submit a detailed Work Plan and time schedule for all construction activities that will make it necessary to remove a tank, pipeline, electrical circuit, equipment, structure, road or other facilities from service, including the critical outages identified herein.
      b. The Work Plan shall, at a minimum, identifying:
         1) the date and time when each activity will occur;
         2) what equipment will be present including standby equipment;
         3) what assistance will be required by OWNER's operating personnel;
         4) an emergency backup plan identifying what action will be taken if Work cannot be completed within the allotted time; and
         5) what individual will be in charge of the activity.
      c. Submit Work Plan 10 days prior to the scheduled activity.
   4. Perform Work continuously during critical connections and changeovers, and as required to prevent interruption of OWNER's operations.
   5. Shutdowns:
      a. Coordinate proposed Work with OWNER and facility operations personnel before affecting unit shutdowns. The CONTRACTOR shall provide written confirmation of the shutdown date and time two (2) working days prior to the actual shutdown.

b. Under no circumstances shall the CONTRACTOR cease Work at the end of a normal working day or at the end of a working week if such actions may inadvertently cause a cessation of any facility operating process, in which case, remain onsite until necessary repairs are complete.

6. Do not close lines, open valves or gates, shut down equipment, or take other action which would affect the operation of existing systems, except as specifically required by the Contract Documents and after approval of OWNER.
7. Do not proceed with Work affecting a facility's operation without obtaining OWNER's advance approval of the need for and duration of such Work.

B. Relocation of Existing Facilities:
   1. During construction, it is expected that minor relocations of Work will be necessary.
   2. Provide complete relocation of existing structures and Underground Facilities, including piping, utilities, equipment, structures, electrical conduit wiring, electrical duct bank, and other necessary items.
   3. Use only new materials for relocated facility. Match materials of existing facility, unless otherwise shown or specified.
   4. Perform relocations to minimize downtime of existing facilities.
   5. Install new portions of existing facilities in their relocated position prior to removal of existing facilities, unless otherwise accepted by OWNER.

C. Overtime:
   1. Conduct Work outside regular working hours on prior written consent of OWNER to meet Project schedule and avoid undesirable conditions.
   2. All overtime Work by the CONTRACTOR necessary to conform to the requirements of this Section and related Sections shall be performed by the CONTRACTOR, at no cost to the OWNER and shall be performed in accordance with the General Conditions. The CONTRACTOR shall make no claims for extra compensation as a result thereof.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01200

MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.1 GENERAL

A. Payment will be made at the price bid for each item listed on the bidding form or as extra work as provided in the General Conditions.

B. No initial progress payment (other than a single mobilization payment as described in Article 1.3 below) will be made prior to acceptance by the ENGINEER of the CPM Construction Schedule, the associated Schedule of Costs, and the list of anticipated submittals.

C. No subsequent progress payment will be made prior to receipt by the ENGINEER of the monthly update of the Construction Progress Schedule, as specified in Sections 01310, Project Meetings and 01320, Progress Schedule.

D. No subsequent progress payment will be made prior to receipt by the ENGINEER of Certified Payrolls for the previous month.

1.2 SCHEDULE OF COSTS FOR PAYMENTS

A. Submit to the ENGINEER, within 5 days of acceptance of the Construction Schedule, five (5) copies of a Schedule of Costs. The Schedule of Costs shall be a form showing a detailed breakdown of quantities and prices of work and materials required to perform and complete the contract.

B. The Schedule of Costs shall provide a cost breakdown for each element detailed in the approved Construction Schedule. The total of the price breakdown must agree with the lump-sum price bid. The elements listed and price breakdown shall not be front end loaded or unbalanced, shall be subject to adjustment between the ENGINEER and the CONTRACTOR, and will be used as a basis for progress payments.

C. The Schedule of Costs will be used as a basis for determining the amount of the monthly progress payments.

D. Acceptance of the Schedule of Costs by the ENGINEER shall not relieve the CONTRACTOR of the responsibility of performing all the work needed to complete the project at the lump-sum price bid.

1.3 PAYMENT FOR MOBILIZATION

A. Mobilization Cost Breakdown:
   1. As soon as practicable after receipt of the Notice to Proceed, the CONTRACTOR shall submit a breakdown to the ENGINEER for approval, which shall show the estimated value of each major component of mobilization.
   2. When approved by the ENGINEER, the breakdown will be the basis for initial progress payments in which mobilization is included.
   3. Said breakdown shall not be "front end loaded" or unbalanced.

B. One CONTRACTOR payment may be made prior to acceptance of the Construction Schedule, Schedule of Costs, and list of anticipated submittals.
   1. Payment shall be limited to mobilization items only.
   2. The Construction Schedule is described in Section 01320, Construction Schedule.
   3. Mobilization items are described in Section 01505, Mobilization.
   4. The Schedule of Costs is described in Article 1.2 of this Section.
   5. The list of anticipated submittals is described in Section 01330, Submittal Procedures.

1.4 PROGRESS PAYMENTS

A. Progress Payment Request Submittal:
   1. Unless otherwise mutually agreed, by the 25th of each month, the CONTRACTOR shall prepare and submit monthly progress payment requests for work completed through the 25th day of the month.
   2. Said payment request shall be based on the breakdown of activities as specified in the Schedule of Costs described in Article 1.2 above.
   3. The monthly schedule update shall be submitted as part of the monthly progress payment report.

B. The ENGINEER will review progress payment requests and make a determination of the percent completion of all activities (rounded to the nearest whole percent) based on an approximate measurement of all materials supplied and work performed.

C. In the event that the CONTRACTOR fails to provide the OWNER with an acceptable Monthly Contract Record Drawing Submittal in accordance with Section 01330, the OWNER shall deduct compensation for such monthly submittal as provided in Section 01320. Said deduction shall become the sole property of the OWNER.

D. Retention:
   1. From the amount thus determined, five percent thereof will be deducted as retention by OWNER for performance security.
   2. Acceptance of separate components shall not operate to release performance retention.
   3. The amount of all payments previously made to the CONTRACTOR and any amounts due the OWNER from the CONTRACTOR for supplies, materials, services, damages, or otherwise deductible under the terms of the contract will be deducted from the remainder.
   4. The remaining amount will be paid as a progress payment by the OWNER to the CONTRACTOR on the third Friday of the succeeding month or as soon thereafter as is practical.

E. In addition to the retention under Paragraph D above, the whole or part of any payment of the estimated amount due the CONTRACTOR may be withheld as an additional retention if such course be deemed necessary to protect the OWNER from loss due to the CONTRACTOR's failure to perform any of the following: (1) meet CONTRACTOR's payment obligations; (2) execute the work; (3) correct defective work; (4) settle damages as provided; or (5) produce substantial evidence that no stop notices will or have been filed, and/or if it has been determined that unpaid balances may be insufficient to complete the work.

F. All material and work covered by progress payments thereupon become the sole property of the OWNER, but this provision shall not be construed as relieving the CONTRACTOR from sole responsibility for all materials and work upon which payments have been made

or the restoration of any damaged work or as a waiver of the OWNER's right to require fulfillment of all of the contract terms. Said CONTRACTOR's obligation extends through the close of the warranty period.

G. Payment for Materials:
   1. No payment shall be made for materials stored offsite.
   2. Payment may be made for those materials delivered to the site but not incorporated in the work to the extent that the materials are included in the Construction Schedule as cost-loaded material delivery activities.
   3. Only material items manufactured specifically for this project and that cost individually in excess of $20,000 will be considered for partial payment as stored materials.
   4. Partial payment for materials delivered will not be made before the respective shop drawings, installation instructions and O&M manuals have been submitted, reviewed, and accepted in accordance with Section 01330, Submittal Procedures.
   5. To receive partial payment for materials delivered to the site, but not incorporated in the work, it shall be necessary for the CONTRACTOR to submit to the ENGINEER, at least 7 days prior to the end of said month, a list of such materials.
   6. At their sole discretion, the ENGINEER will approve items for which partial payment is to be made.
   7. The list of materials and invoices shall be clearly identified by referencing the associated activity or item on the price breakdown.
   8. Partial payment for materials delivered to the site or a bonded warehouse will be made in an amount equal to 75% of the respective suppliers' invoices(s) for the actual net cost for the item(s) delivered plus delivery charges.
   9. The CONTRACTOR's actual net cost for the materials must be supported by invoices of suppliers.
   10. Proper storage and protection of materials shall be provided by the CONTRACTOR. Final payment shall be made only for materials actually incorporated in the work and, upon acceptance of the work, all materials remaining for which advance payments had been made shall revert to the CONTRACTOR, unless otherwise agreed, and partial payments made for these items shall be deducted from the final payment for the work.

1.5 FINAL PAYMENT AND RELEASE OF CLAIMS

1. Upon the completion of the work as determined by the ENGINEER, a Notice of Acceptance will be issued and recorded with the County.
2. The OWNER will pay to the CONTRACTOR within 35 days after filing of the Notice of Acceptance, or as soon thereafter as practicable, the remaining amount due the CONTRACTOR including retainage, less all prior payments and advances whatsoever to or for the account of the CONTRACTOR for supplies, materials, services, damages, stop notices, or otherwise deductible under the terms of the contract.
3. All prior estimates and payments including those relating to extra work shall be subject to correction by this payment, which throughout this contract is called "Final Payment".

1.6 RELEASE OF CLAIMS:

A. Neither the final payment nor any part of the retained percentage shall become due until the CONTRACTOR shall have delivered to the OWNER a complete release of all claims against the OWNER arising under and by virtue of this contract and related to undisputed amounts, including claims of Subcontractors and suppliers of either materials or labor.

B. If disputed contract claims in stated amounts are unresolved 35 days after issuance of the Notice of Acceptance, a progress payment of undisputed amounts and retained funds will be made by OWNER upon receipt of a release specifically excluding the disputed contract claims.

C. Claims by the OWNER against the CONTRACTOR for liquidated damages or actual damages or other causes will be a valid basis for withholding of funds by the OWNER.

D. Upon resolution of disputed claims the CONTRACTOR shall execute a supplemental release and, upon delivery the OWNER will make final payment.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01310

PROJECT MEETINGS

PART 1 - GENERAL

1.1 PRE-CONSTRUCTION CONFERENCE

A. Upon receipt of the Notice to Proceed, or at an earlier time if mutually agreeable, the ENGINEER will arrange a preconstruction conference to be attended by the CONTRACTOR's superintendent or other project representative authorized to commit on the behalf of the CONTRACTOR and to direct the performance of the work by others, the OWNER, the ENGINEER or ENGINEER's representative, and representatives of utilities, major subcontractors, and others involved in the execution of the work.

B. The purpose of this conference will be to establish a working relationship and understanding between the parties and to discuss subjects as may be pertinent for the execution of the work.

C. CONTRACTOR shall be prepared to discuss the following subjects, as a minimum:
   1. Required schedules.
   2. Status of Bonds and insurance.
   3. Sequencing of critical path work items.
   4. Progress payment procedures.
   5. Project changes and clarification procedures.
   6. Use of site, access, office and storage areas, security and temporary facilities.
   7. Major product delivery and priorities.
   8. CONTRACTOR's safety plan and representative.

1.2 PROGRESS MEETINGS

A. The ENGINEER will arrange and conduct progress meetings. The ENGINEER will prepare and circulate a draft agenda of each meeting. The CONTRACTOR may add items as appropriate to the draft agenda.

B. Progress meetings will be conducted on a regular basis, at such frequency as the OWNER and CONTRACTOR may mutually agree. Progress meetings shall be attended by the ENGINEER, OWNER Operations personnel, CONTRACTOR's superintendent or other project representative, and representatives of all subcontractors involved in the work at the time of the meeting, required by the CONTRACTOR, or requested by the OWNER.

C. The purpose of the meetings will be to facilitate the work of the CONTRACTOR and any subcontractor or other organization that is not up to schedule, resolve conflicts, identify and resolve any potential delays or necessary changes in the work and in general, coordinate and facilitate the execution of the work.

D. The agenda of progress meetings shall include review of work progress, the latest Construction Schedule submittal (monthly), potential project delays, the status of key shop drawings, submittal reviews, information requests, safety concerns, record drawings, and extra work items.

1.3 CONSTRUCTION SCHEDULE REVIEW

A. The Construction Schedule will be reviewed monthly during an agreed upon progress meeting to verify at a minimum:
   1. Actual start and finish dates of completed activities since the last progress meeting.
   2. Durations and progress of all activities not completed.
   3. Critical submittals/materials delivery problems.
   4. Potential project delays.
   5. Any activity behind schedule and CONTRACTOR's plan to bring it back on schedule.
   6. Reason, logic, time, and cost data for Change Order work that is to be incorporated into the Construction Schedule or payment request form.
   7. Payment due to the CONTRACTOR based on percentage complete of items in the submittal payment request form.

B. At the progress meeting, the CONTRACTOR shall provide an update of the Construction Schedule as described in Section 01320, Progress Schedule.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

++ END OF SECTION ++

SECTION 01322

PROGRESS SCHEDULE

PART 1 - GENERAL

1.1 WORK INCLUDED

A. The work specified in this Section includes the CONTRACTOR's preparation, submittal, maintenance and use of a computerized Critical Path Method (CPM) Construction Schedule to plan and monitor construction progress for the project.

B. The computerized CPM schedule shall be completed using Microsoft Project for Windows or another software package acceptable to the ENGINEER.

C. The requirements specified under Section 01330, Submittal Procedures, also apply to the Construction Schedule initial submittal(s) and subsequent updates and revisions.

1.2 PREPARATION AND SUBMITTAL PROCEDURE

A. Schedule Preparation and Submittal:
   1. The CONTRACTOR's on-site construction supervisor (superintendent, project manager, etc.) shall be directly involved in preparation of the Construction Schedule.
   2. The Construction Schedule shall be completed and submitted to the ENGINEER within 30 days after Notice to Proceed.
      a. By preparing and submitting the Construction Schedule the CONTRACTOR represents that the CONTRACTOR can and intends to execute the work and portions thereof within the specified times and constraints and that the CONTRACTOR's bid covers the costs associated with the execution of work in accordance with the Construction Schedule.
   3. At the time of submittal of the Construction Schedule, CONTRACTOR's on-site construction supervisor shall review the schedule with ENGINEER's construction project representative.
   4. If the initial Construction Schedule submittal is not acceptable to the ENGINEER, it shall be revised in coordination with observations and comments from the ENGINEER and resubmitted within 7 days of the return of the schedule to the CONTRACTOR.

1.3 CONSTRUCTION SCHEDULE CONTENT

A. The Construction Schedule shall be calendar-based, time-scaled, and show the durations of and relationships between the various work activities.

B. Work activities shall be selected which reflect actual work to be performed for this specific project. No generic work activities shall be allowed.
   1. Work activities shall include non-construction activities such as submittal preparation and review, manufacturing, equipment delivery, mobilization, etc. for a complete picture of the CONTRACTOR's plan for project execution.
   2. Information on each activity shall include:
      a. Concise description of the activity.
      b. Duration in working days.
      c. The dates for the beginning and completion of each activity.
      d. The relationship of each activity to other activities.

3. No work activity shall be longer than 10 working days.
   a. Work tasks which will take longer than 10 working days shall be broken down into several work activities which are no longer than 10 working days.
   b. Each work activity must be defined clearly and measurable. For example, a series of work activities such as "Building 1, east wall piping; Building 1, west wall piping; Building 1, north and south wall piping", each with a duration less than 10 days would be acceptable. A series of work activities all labeled "Building 1 Piping", even if each had a duration less than 10 days, would not be acceptable because the tasks are not defined clearly or measurable.

C. The schedule shall be referenced to calendar dates, and the beginning of the contract time shall be the date of receipt of the Notice to Proceed.

D. Failure to include an activity required for the execution of the work shall not excuse the CONTRACTOR from completing the work and portions thereof within the specified times and at the price specified in the Agreement, and from meeting the constraints specified for sequence of work and control dates.

1.4 UPDATING THE CONSTRUCTION SCHEDULE

A. The CONTRACTOR shall update the Construction Schedule prior to the progress and schedule review at the monthly progress meetings, as specified in Section 01310, Project Meetings.

B. The schedule update shall reflect progress to date. The schedule update shall incorporate all revisions to logic and duration.

1.5 ADJUSTMENT OF THE CONTRACT TIME AND CHANGE ORDERS

A. Adjustments of the contract time due to delays, additional work, or any other cause will only be issued through a contract change order in accordance with the General Conditions.
   1. The CONTRACTOR shall include, as part of each change order proposal for which the CONTRACTOR is requesting an adjustment in the contract duration, a proposed revised Construction Schedule.
   2. The proposed revised Construction Schedule shall be compared to the most recent Construction Schedule to assess overall schedule impact.
   3. If a Change Order is issued by the OWNER, the CONTRACTOR shall incorporate the Change Order into the Construction Schedule.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 GENERAL

A. General:
   1. This Section outlines in general the items that the CONTRACTOR must prepare or assemble for submittal during the progress of the work.
   2. There is no attempt herein to state in detail all of the procedures and requirements for each submittal.
   3. The CONTRACTOR's attention is directed to the individual Specification Sections in these Contract Documents, which may contain additional and special submittal requirements.
   4. The OWNER reserves the right to direct and modify the procedures and requirements for submittals as necessary to accomplish the specific purpose of each submittal.
   5. The CONTRACTOR shall anticipate resubmitting submittals for major pieces of equipment and for control systems.
   6. Should the CONTRACTOR be in doubt as to the procedure, purpose, or extent of any submittal, inquiries shall be directed to the ENGINEER.

B. Schedule of Submittals:
   1. Within 30 days of the Notice to Proceed, the CONTRACTOR shall submit a complete list of anticipated submittals, including specification/drawing references.
   2. This list shall be updated with "late start" submittal dates within 15 days of submittal of the CONTRACTOR's Construction Schedule.
   3. The submittal dates shall be updated upon approval of the Construction Schedule and periodically thereafter.
   4. Any additional submittals shall also be included in updates.

1.2 ADMINISTRATIVE SUBMITTALS

A. The CONTRACTOR is reminded of their obligation as required by law to make required submittals promptly to the applicable federal, state, or local agency. Failure to comply with this requirement may result in the withholding of progress payments and make the CONTRACTOR liable for other prescribed action and sanctions.

B. The CONTRACTOR shall submit to the ENGINEER a copy of all letters relative to the Contract, transmitting notifications, reports, certifications, certified payrolls, and the like, that the CONTRACTOR submits directly to a federal, state, or other governing agency.

C. During the performance of the Contract, the CONTRACTOR shall maintain on a daily basis, and submit to the ENGINEER as requested, full and correct information as to the number of persons employed in connection with each subdivision of the work, the classification, rate of pay, citizenship status, and address of each person, and the cost, source, and amount of each class of materials delivered, equipment received, and major construction equipment used in each subdivision of the work.

1.3 TECHNICAL SUBMITTALS

A. General:
   1. Requirements in this Section are in addition to any specific requirements for submittals specified in other divisions and Sections of these Contract Documents.
   2. Submittal Contents and Numbering:
      a. Each submittal shall contain material pertaining to no more than one equipment or material item and shall have the specification Section and applicable paragraph number clearly identified on the front of the submittal transmittal form.
      b. Each submittal shall be sequentially numbered starting with the first one delivered.
      c. Resubmittals shall include the number of the original submittal plus the suffix ".1" for the first resubmittal, ".2" for the second resubmittal, etc. (e.g. submittal 3.0, 3.1, 3.2, etc.).
      d. Submittals not conforming to these requirements will be rejected.
   3. Submitted data shall be fully sufficient in detail for determination of compliance with the provisions and intent of the Contract Documents.
   4. Coordination Responsibilities:
      a. Shop drawing submittal and coordination are the responsibility of the CONTRACTOR; this responsibility shall not be delegated in whole or in part to Subcontractors or suppliers.
      b. Designation of work "by others," if shown on shop drawings, shall mean that the work will be the responsibility of the CONTRACTOR rather than the Subcontractor or supplier who has prepared the shop drawings.
   5. No equipment or material for which listings, drawings, or descriptive material is required shall be fabricated, purchased, or installed until the ENGINEER has reviewed and accepted such lists, final shop drawings, or other descriptive material. Installation of such equipment or material without accepted submittals will be considered defective work.
   6. Submittal Review Time:
      a. Submittals will be acted upon by the ENGINEER as promptly as possible, and returned to the CONTRACTOR not later than the time allowed for review in Paragraph B.2 below.
      b. The CONTRACTOR shall provide in their Construction Schedule the time for OWNER review of each submittal (and resubmittal for major equipment and control systems) in accordance with the allowable time specified herein and in Section 01320, Progress Schedule.
      c. This required time for OWNER review shall not be a cause for delay in contract completion nor shall it be a reason for an extension of contract time.
      d. If the CONTRACTOR is required by the OWNER to resubmit data, then neither the time required for the CONTRACTOR to prepare and resubmit such data, nor the required time for OWNER review, shall be a cause for delay in contract completion or for an extension of contract time.
      e. Responsibility for time required for preparing and submitting required data shall be assigned solely to the CONTRACTOR.
   7. Excessive Submittal Review:
      a. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submittal to the ENGINEER by the second submission of a submittal item.
      b. Additional costs of the ENGINEER's review beyond the second submission shall be the responsibility of the CONTRACTOR and may be deducted from the monthly progress payments.
      c. This applies to all submittals including shop drawings.

8. Changes After Review:
   a. After a submittal has been reviewed and accepted, no changes or substitutions in that submittal will be allowed without the ENGINEER's approval.
   b. If allowed, the CONTRACTOR will be responsible for the additional costs for engineering, administrative, clerical or other work required for additional review.
9. Intent of Review:
   a. Shop drawings will be reviewed for general conformance with the drawings and specifications.
   b. The intent of the review is to determine if the CONTRACTOR is submitting materials and equipment which are in general conformance with the Contract Documents.
   c. Detailed review of dimensions, sizes, space requirements, coordination with other equipment, and other construction details is not performed.
   d. Additional work and costs, resulting from errors in the shop drawings shall be the CONTRACTOR's responsibility and liability.
   e. Accuracy, coordination, and completeness of shop drawings shall be the sole responsibility of the CONTRACTOR, including responsibility to backcheck comments, corrections, and modifications from the ENGINEER's review before fabrication.
10. The CONTRACTOR shall indicate on the submittal transmittal form if and how the submittal deviates from the contract requirements.
11. Rebar Shop Drawings:
   a. Shop drawings of reinforcing steel detailed by the CONTRACTOR in accordance with the Contract Documents will not be reviewed and returned.
   b. The CONTRACTOR shall supply the ENGINEER with a copy of all reinforcing steel detail drawings.
   c. Changes to the Contract Documents made by the CONTRACTOR in reinforcing steel shop drawings shall be called out in the letter of submittal.
   d. Such changes will not be acceptable unless the ENGINEER has expressed consent to such changes in writing.
12. Shop drawings, layout diagrams, catalog cuts and data, test reports, and information in sufficient detail to show complete compliance with all specified requirements shall be furnished to the ENGINEER, covering but not limited to the following items:

    Aggregate Base Course
    Air compressors
    Asphalt mixes
    Block masonry
    Building specialties
    Cabinets
    Caulking and sealing compounds
    Chemical systems
    Concrete mixes
    Control panels
    Demolition plan
    Detection systems
    Doors and frames
    Electrical conduit, wire and specials
    Electrical fixtures and appliances
    Electrical load centers
    Electrical substations
    Electrical conduit, wire and specials
    Engineered fill
    Engines and appurtenances

Equipment provided by the CONTRACTOR
Fences, barricades and gates
Gas monitoring systems
Generators and appurtenances
Glazing
Grating
Gravel bedding
Grout
Hardware
Heating, ventilating and air conditioning equipment
Imported fill
Indicators
Instrumentation
Landscaping
Lights and lighting fixtures
Louvers
Meters
Miscellaneous fabricated metals
Miscellaneous furnishings
Mixers
Motor control centers
Motors, starters and controls
Office equipment and furnishings provided by CONTRACTOR
Paints, coatings and finishes
Piles
Pipe, fittings and specials
Pipe supports and anchors
Plumbing fixtures
Precast concrete elements
Pressure gauges
Primary elements
Programmable logic controllers
Pumps
Recorders
Reinforcing steel and layout drawings
Roofing and waterproofing
Sheet pile, shoring and bracing
Shelving
Signs
Structural steel
Tanks
Temporary bypasses
Temporary dewatering systems and equipment
Valve and gate operators and controllers
Valves and gates
Variable frequency drives
Water heaters
Windows
Workstations

B. Submittal Procedure:
   1. The CONTRACTOR shall submit to the ENGINEER for review eight (8) copies of each submittal (shop drawings, electrical diagrams, and catalog cuts for fabricated items

and manufactured items furnished under this Contract, etc.) Three (3) copies will be returned to the CONTRACTOR.

2. Shop drawings shall be submitted in sufficient time to allow the ENGINEER not less than twenty (20) working days for examining the shop drawings except for designs for turnkey items for which thirty (30) working days will be allowed, and substitutions for which (40) working days will be allowed.
3. Shop drawings shall be accurate, distinct, and complete, and shall contain all required information, including satisfactory identification of items, units, and assemblies in relation to the Contract Drawings and Specifications.
4. CONTRACTOR Certification:
   a. Shop drawings shall be submitted only by the CONTRACTOR, who shall indicate by a signed stamp on the shop drawings, or other approved means, that the CONTRACTOR has checked and approved the shop drawings, and that the work shown is in accordance with Contract requirements and has been checked for dimensions and relationship with work of all other trades involved.
   b. Submitting incomplete or unchecked shop drawings for the ENGINEER to correct or finish will not be acceptable, and shop drawings that, in the opinion of the ENGINEER, indicate that they have not been checked by the CONTRACTOR will be rejected and returned to the CONTRACTOR for resubmission in the proper form.
5. Return of Reviewed Submittals:
   a. When the shop drawings have been reviewed by the ENGINEER, the appropriate number of submittals will be returned to the CONTRACTOR appropriately stamped.

   b. If major changes or corrections are necessary, the shop drawing will be rejected and returned to the CONTRACTOR with the need for such changes or corrections indicated.
   c. The CONTRACTOR shall correct and resubmit rejected shop drawings in the same manner and quantity as specified for the original submittal.
   d. If changes are made by the CONTRACTOR (in addition to those requested by the ENGINEER) on the resubmitted shop drawings, such changes shall be clearly explained in a transmittal letter accompanying the resubmitted shop drawings.
6. The review of such shop drawings and catalog cuts by the ENGINEER shall not relieve the CONTRACTOR from responsibility for correctness of dimensions, fabrication details, coordination with other work, and space requirements, or for deviations from the Contract Drawings or Specifications, unless the CONTRACTOR has called attention to such deviations in writing by a letter accompanying the shop drawings and the ENGINEER approves the change or deviation in writing at the time of submission; nor shall review by the ENGINEER relieve the CONTRACTOR from the responsibility for errors in the shop drawings.
7. The CONTRACTOR agrees that shop drawing submittals processed by the ENGINEER do not become Contract Documents and are not Change Orders; that the purpose of the shop drawing review is to establish a reporting procedure and to permit the ENGINEER to monitor the CONTRACTOR's progress and understanding of the design.

C. Shop Drawing Requirements: Shop drawings referred to herein shall include shop drawings, catalog cuts and information schematic diagrams, and other submittals for both shop and field-fabricated items. The CONTRACTOR shall submit, as applicable, the following for all prefabricated or manufactured structural items, material, and equipment:
   1. General:
      a. For structures, submit all shop, setting, equipment, miscellaneous iron and reinforcement drawings and schedules necessary for construction. The foregoing shall include detailed "pour drawings" which shall show the sequence of concrete

placement, and the type, quantity and location of all embedment items (sleeves, anchor bolts, door frames, etc.)

b. For pipelines, submit a detailed layout of the pipeline with details of bends, closure pieces and fabricated specials and furnish any other details necessary.
c. For trench excavation, submit detailed plan showing the design of shoring, bracing, sloping or other provisions necessary for safety.
d. For boring and jacking, submit a detailed description of the process to be used.
e. For equipment which requires electrical service, submit detailed information to show power supply requirements, MCC and control panel, elevations, wiring diagrams, control and protection schematics, shop test data, operation and maintenance procedures, outline drawings, and manufacturer's recommendation of the interface/interlock among the equipment.
f. For mechanical equipment submit all data pertinent to the installation and maintenance of the equipment including shop drawings, anchorage requirements, manufacturer's recommended installation procedure, detailed installation drawings, test data and curves, operation and maintenance manuals, and other details necessary.
g. For architectural fabrication submit all data pertinent to the installation of the fabrications, including shop drawings, manufacturer's recommended installation procedure, detailed installation drawings, and other details necessary.
h. For shop drawings or equipment drawings, including dimensions, size and location of connections to other work, and weight of equipment.
i. Installation or placing drawings for equipment, drives, and bases.
j. Supporting calculations for equipment and associated supports, or hangers required or specified to be designed by equipment manufacturers, including seismic restraint information and details.
k. Complete coating manufacturer's specifications, including materials description and paint system.
l. Performance data and head vs. flow curves for compressor and pumps.
m. Suggested spare parts list with current price information.
n. List of special tools required for checking, testing, parts replacement, and maintenance. (Special tools are those which have been specially designed or adapted for use on parts of the equipment, and which are not customarily and routinely carried by maintenance mechanics.)
o. List of special tools furnished with the equipment.
p. List of materials and supplies required for the equipment prior to and during startup.
q. Installation instructions.
r. List of materials and supplies furnished with the equipment.
s. Samples of finish colors for selection.
t. Special handling instructions.
u. Requirements for storage and protection prior to installation.
v. Requirements for routine maintenance required prior to plant startup.
w. Startup and operating instructions.
x. Seismic design calculations and restraint details for equipment and piping supports. Calculations shall be stamped by a Civil or Structural Engineer registered in the State of Texas.

2. Electrical:
   a. Wiring and control diagrams of systems and equipment. Local control panel details.
   b. List of special motor features being provided (e.g., space heaters, altitude corrections, thermal protectors, mounting arrangement, etc.).

c. Complete motor rating for all motors, including motor no-load, starting, and full-load current at rated voltage; full-load speed and full-load current at 110 percent voltage; motor service factor; motor efficiency and power factor at 1/2, 3/4, and full-load at rated voltage; recommended maximum kVAR of power factor correction capacitors when capacitors are switched with motor.
d. See Division 16, ELECTRICAL, for additional specific submittal requirements.

3. Instrumentation and Control:
   a. See Technical Sections for additional specific submittal requirements.
   b. The submittals shall include satisfactory identification of items, units, and assemblies in relation to the Specification Section number, and the system or equipment identification or tag number shown on the Drawings, the Process and Instrumentation Diagram (P&ID), or as provided in applicable Specification Section.

D. Submittals required for foreign-manufactured items:
   1. In addition to the submittal requirements stated above, suppliers of foreign-manufactured items shall submit the names and addresses of companies within the United States that maintain technical service representatives and a complete inventory of spare parts and accessories for each foreign-made item proposed for incorporation into the work. Failure to provide the foregoing capabilities shall be just cause for rejection of the foreign-manufactured items.

E. Final shop drawings to be submitted to OWNER:
   1. Complete sets of reproducible (full size mylar or vellum base) final shop drawings shall be submitted to the OWNER before, or at the time of, delivery of equipment onto the site.

F. Seismic loading design provisions:
   1. All equipment supports that are not specifically detailed on the Drawings or specified herein shall be the responsibility of the equipment manufacturers and shall be designed by a Civil or Structural Engineer registered in the State of Texas.
   2. The design shall be in accordance with the seismic provisions of the latest edition of the International Building Code and of the seismic design requirements listed in Section 01610, General Equipment Requirements, in addition to all other loading conditions.

G. Submittal of interface information (connection and correlation with other work):
   1. Where called for in the Specifications, and as determined necessary by the ENGINEER to provide proper correlation with other equipment, complete interface information shall be submitted.
   2. This interface information shall be accurate, and contain all information necessary to allow the completion of detailed design and construction of the interfacing or connecting work.
   3. The CONTRACTOR shall include in their negotiation for subcontract work, such agreements as may be necessary to ensure the accuracy of Subcontractor's interface submittal information.
   4. In the event additional costs are incurred due to subsequent changes to information given in said interface information, such additional costs shall be borne by the CONTRACTOR.

H. Record Drawings
   1. The CONTRACTOR shall deliver to the OWNER one complete set of final Record Drawings for OWNER records before the contract will be accepted by the OWNER.

The Record Drawings will consist of a set of reproducible drawings of all CONTRACTOR supplied equipment (including control systems) and a marked-up set of Contract Record Drawings.

2. Record Drawings of CONTRACTOR-Supplied Equipment
   a. The drawings shall be silver imaged, positive, reverse-reading duplicates (image reversed when viewed from emulsion side), and at the same dimensional scale as the originals. They shall be on a polyester translucent base material with a matte surface on the side opposite the emulsion side. The image emulsion side shall be without a matte surface. The matte surface shall have a sufficient tooth to take a solid opaque line from a 4H pencil and be compatible to the use of ink. Minimum sheet thickness shall be (.08 mm) .003 inch.
   b. The legibility and contrast of each drawing submitted to the OWNER shall be such that every line, number, letter, and character is clearly readable in a full size blow back from a 35 mm microfilm negative of the drawing.
   c. The overall dimensions of each drawing submitted to the ENGINEER shall be equal to one of the OWNER's standard sheet sizes. The title block area in the lower right hand corner of each drawing shall be clear of all linework, dimensions, details, and notes, except for the CONTRACTOR's title block. The dimensions of the title block area are minimum and are measured from the edges of the drawing sheet.

DRAWING FORMAT	
Sheet Sizes Height x Width	Title Block Area Height x Width
11" x 8-1/2"	2-1/2" x 3-3/4"
11" x 17"	3" x 4"
22" x 34"	3-1/2" x 8"

3. Contract Record Drawings
   a. The CONTRACTOR shall keep an up-to-date set of marked-up Contract Drawings on an OWNER-supplied set of Drawings.
   b. The OWNER-supplied set of Drawings will consist of one set of full-size sepia reproductions of the Contract Drawings, supplied to the CONTRACTOR at the start of the work.
   c. During the progress of the work, the CONTRACTOR shall record on the Contract Record Drawings any changes from or additions to the work described in the Plans and Specifications.
   d. All information recorded on the Contract Record Drawings shall be clearly legible.
   e. Information to be recorded on the Contract Record Drawings shall include, but not be limited to, the following:
      1) Actual routing of electrical conduits, whose routing is only indicated in general on the Drawings.
      2) Actual location of manhole structures.
      3) Actual alignment of all installed pipe.
      4) Specific details of pipe connections, and manhole structures.
      5) Specific details on the installation and connection of mechanical and electrical equipment.

6) Field dimensions where they differ from those shown on the Drawings.
7) Additions to and/or deletions from the work, including all contract change orders.
8) Other details showing as-built conditions, which are shown differently or only in general on the Drawings.
9) Addenda.
10) Location of buried features located during construction except utility service connections.

f. It is the CONTRACTOR's responsibility to ensure that any changes, deletions, specific construction details, etc., performed by a Subcontractor are recorded on the Contract Record Drawings.
g. Location Survey:
1) The CONTRACTOR shall professionally survey the lateral and vertical position of anything buried underground as part of this Contract to within one inch accuracy of the benchmark and baseline provided by the OWNER.
2) The survey information shall be included on the record drawings and the CONTRACTOR shall not be allowed to cover the buried materials until after the OWNER's inspector has verified the information as accurate and complete, and is shown on the record drawings.
h. Once every month, starting from the completion of mobilization as defined in Section 01505, Mobilization, the CONTRACTOR shall provide the OWNER with a copy of the then up-to-date set of marked-up Contract Record Drawings in accordance with the provisions under Section 01200, Measurement and Payment, and Section 01320, Project Schedule.
i. At the end of the work, prior to Project Closeout, the CONTRACTOR shall provide the OWNER with the Contract Record Drawings, showing all "as-built" conditions.
j. See also Section 01800, Operational Completion and Project Closeout.

I. Operation and Maintenance (O&M) Manuals:
1. The CONTRACTOR shall furnish five (5) hard-copies and one (1) electronic copy of a complete instruction manual for installation, operation, maintenance, and lubrication requirements for each component of mechanical and electrical equipment or system.
2. All equipment manufacturers shall be made aware of these requirements and all associated costs shall be included in the costs for furnishing the equipment or system.
3. O&M Submittal Review Checklist:
a. The CONTRACTOR shall include a completed O&M Manual Submittal Review Checklist (copy included at the end of this Section) with each O&M manual submittal.
b. The checklist shall indicate that the O&M manual as submitted complies in all respects to the contract requirements.
c. Any O&M manual submitted without a completed checklist will be rejected.
4. The manuals shall be furnished to the ENGINEER upon the delivery of the respective equipment.
5. No payment will be made for equipment or materials or equipment installation before the respective O&M manuals have been approved by the ENGINEER.
6. Each O&M manual shall be complete in all respects for all equipment, controls, accessories, and associated appurtenances.
7. Each O&M manual shall include, but not be limited to, the following:
a. Diagrams and illustrations, including pump curves indicating operating points.
b. Detailed description of the function of each principal component of the system.
c. Performance and nameplate data.
d. Installation instructions.
e. Starting procedure

f. Proper adjustment procedure.
g. Test procedures.
h. Operating procedure.
i. Shutdown instructions.
j. Emergency operating instructions and troubleshooting guide.
k. Safety instructions.
l. Maintenance and overhaul instructions which shall include detailed assembly drawings with part numbers, parts list, instructions for ordering spare parts, and complete preventive maintenance instructions required to ensure satisfactory performance and longevity of the equipment.
m. Lubrication instructions which shall list points to be greased or oiled, shall recommend type, grade, and temperature range of lubricants, and shall recommend frequency of lubrication.
n. List of electrical relay settings and control and alarm contact settings.
o. Electrical interconnection wiring diagram for equipment furnished, including all control and lighting systems.
p. Recommendations for spare parts and special tools.

8. Hard-Copy O&M Manuals:
   a. Each copy of the manual shall be assembled in one or more hard-back type three-ring binders, each with title page, typed table of contents, and heavy section dividers with numbered plastic index tabs.
   b. Cover label and title page shall be clearly labeled to designate the project title, project number, Specification Section where the item is specified, system or equipment for which it is intended with reference to the facility, equipment number, and equipment manufacturer name.
   c. Typed table of contents for the entire set, identified by volume number, shall appear in each binder.
   d. Each manual shall be divided into sections paralleling the equipment specifications.
   e. All data shall be hole-punched for binding and composition and printing shall be arranged so that punching does not obliterate any data.
   f. Pages larger than 8-1/2” x 11” shall be folded, showing title block or optionally included in binder pockets.
   g. Where more than one binder is required, they shall be labeled "Vol. 1", "Vol. 2", and so on.
   h. Submit manual organization and format to the ENGINEER for approval prior to manual preparation.
9. Electronic O&M Manuals:
   a. In addition to the designated number of hard-copies for each required Manufacturer’s O&M manual, provide an electronic copy, each on its own separate compact disc/s (CD-ROM).
   b. The CD-ROM shall contain one full version of the O&M manual in Adobe’s Portable Document File (PDF) format.
   c. In addition, the CD-ROM shall contain the separate text and drawing files used to create the PDF O&M manual.
   d. An index shall be provided on the CD-ROM as a separate text file with the name “index” and shall include the file name and detailed description of each individual file included on the CD-ROM.
   e. The CD-ROM and the CD-ROM case shall be labeled with the Project title, Project number, Specification section, equipment number, equipment name, and equipment manufacturer name.
10. Manuals shall be transmitted to the ENGINEER upon delivery of the equipment and all equipment shall be serviced in accordance with the manufacturer's recommendations

prior to operation. A service record shall be maintained on each item of equipment and shall be delivered to the ENGINEER prior to final acceptance of the project.

J. Manufacturers' certificates and proper installation:
   1. The CONTRACTOR shall submit manufacturers' certificates of proper installation for items of equipment as specified under Section 01750, Testing, Training and Startup.

K. Samples and test specimens:
   1. Where required in the Specifications, and as determined necessary by the ENGINEER, test specimens or samples of materials, appliances, and fittings to be used or offered for use in connection with the work shall be submitted to the ENGINEER at the CONTRACTOR's expense, with information as to their sources, with all cartage charges prepaid, and in such quantities and sizes as may be required for proper examination and tests to establish the quality or equality thereof, as applicable.
   2. All samples and test specimens shall be submitted in ample time to enable the ENGINEER to make any tests or examinations necessary, without delay to the work. The CONTRACTOR will be held responsible for any loss of time due to their neglect or failure to deliver the required samples to the ENGINEER, as specified.
   3. The CONTRACTOR shall submit additional samples as required by the ENGINEER to ensure equality with the original approved sample and/or for determination of Specification compliance.
   4. Laboratory tests and examinations that the OWNER elects to make in its own laboratory will be made at no cost to the CONTRACTOR, except that, if a sample of any material or equipment proposed for use by the CONTRACTOR fails to meet the Specifications, the cost of testing subsequent samples shall be borne by the CONTRACTOR.
   5. All tests required by the Specifications to be performed by an independent laboratory shall be made by a laboratory approved by the ENGINEER. Certified test results of all specified tests shall be submitted in duplicate to the ENGINEER. The samples furnished and the cost for the laboratory services shall be at the expense of the CONTRACTOR and included in the prices bid for the associated work.
   6. Approved sample items (fixtures, hardware, etc.) may be incorporated into the work upon approval, and when no longer needed by the ENGINEER for reference.

L. Material and equipment colors:
   1. The ENGINEER will provide a schedule of selected colors within 30 days after approval of materials and equipment, and after receiving samples of the manufacturers' standard colors for those items requiring OWNER's selection.

M. Certificates of Compliance:
   1. A Certificate of Compliance shall be furnished for materials specified to a recognized standard or code prior to the use of any such materials in the work.
   2. The ENGINEER may permit the use of certain materials or assemblies prior to sampling and testing if accompanied by a Certificate of Compliance.
   3. The certificate shall be signed by the manufacturer of the material or the manufacturer of assembled materials and shall state that the materials involved comply in all respects with the requirements of the Specifications.
   4. A Certificate of Compliance shall be furnished with each lot of material delivered to the work and the lot so certified shall be clearly identified in the certificate.

N. Quality Assurance

1. Source limitations: To the greatest extent possible for each unit of work, the CONTRACTOR shall provide products, materials, or equipment of a singular generic kind from a single source.
2. Compatibility of options:
    a. Where more than one choice is available as options for CONTRACTOR's selection of a product, material, or equipment, the CONTRACTOR shall select an option which is compatible with other products, materials, or equipment already selected.
    b. Compatibility is a basic general requirement of product/material selections.

O. Review by ENGINEER
1. After review by the ENGINEER of each of the CONTRACTOR's submissions, the material will be returned to the CONTRACTOR with actions defined as follows:
    a. NO EXCEPTIONS TAKEN: Accepted subject to its compatibility with further submittals and additional partial submittals for portions of the work not covered in this submittal. Does not constitute approval or deletion of specified or required items not shown in the partial submittal.
    b. MAKE CORRECTIONS NOTED: Same as 1.a., except that minor corrections as noted shall be made by the CONTRACTOR.
    c. REVISE AND RESUBMIT: Rejected because of major inconsistencies or errors which shall be resolved or corrected by the CONTRACTOR prior to subsequent review by the ENGINEER.
    d. REJECTED - RESUBMIT: Submitted material does not conform to Plans and Specifications in major respect, e.g., wrong item, wrong size, model, capacity, or material.
2. Review actions (a) and (b) above constitute acceptance by the ENGINEER of the submittal.

P. Requests for Information
1. Requests for Information about the Contract Documents shall be directed by the CONTRACTOR to the ENGINEER using a Request for Information (RFI) form as agreed to by the OWNER and the ENGINEER. Such requests shall not be transmitted directly to the ENGINEER from a Subcontractor or Supplier.
2. A separate form shall be used for each specific item for which information is required. Requests for Information for more than one item using a single RFI form will be permitted only when the items are so functionally related that expediency indicates review of the group of items as a whole.
3. The ENGINEER will reply to the CONTRACTOR's Request for Information as soon thereafter as practicable.

Q. Construction Photographs
1. Provide photographs showing the preconstruction site, construction progress, and the post-construction site.
2. Format: Photographs shall be digital format
    a. Digital Format:
        1) Digital photos shall be taken with a minimum 6.0 mega pixel density and provided in JPG format.
        2) Digital photo files shall be provide on a CD accompanied by a text file that lists the file name, date photo was taken, and brief description of the photograph and location where the photograph was taken.
3. Take a minimum of 36 photos of the preconstruction site and the property adjacent to the perimeter of the construction site. Particular emphasis shall be directed to structures both inside and outside the site, or as directed by OWNER.

4. Take a minimum of 72 photos monthly showing the progress of construction. The location of these photographs shall be determined by OWNER.
5. Take a minimum of 36 photos of the post-construction site and the property adjacent to the perimeter of the site. Particular emphasis shall be directed to structures both inside and outside the plant boundary, or as indicated by OWNER.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

O&M MANUAL REVIEW CHECKLIST

SUBMITTAL NO.		**DATED**	
SPEC. SECTION.		**REVIEW DATE**	
SUBJECT		**REVIEWER**	
EQUIP. ITEM		**SUPPLIER**	
		MANUFACTURER	
ACCEPTABLE		**PROJECT TITLE:**	
UNACCEPTABLE		**PROJECT NO.**	10-045

	ACCEPTABLE?			
DISPOSITION	**YES**	**NO**	**NA**	**COMMENTS**
HARD-COPY O&M MANUALS				
▪ Minimum five (5) copies				
▪ Three-ring binder with hard-back cover				
▪ Cover Label and Title Page:				
Project title and Project number				
Specification section				
System/Equipment names				
Facility				
Equipment number				
▪ Typed table of contents				
▪ Heavy section dividers w/numbered plastic index tabs				
▪ Sections parallel equipment specifications				
▪ Pages punched for 3 ring binder (punching does not obliterate data)				
▪ Info larger than 8-1/2"x11" folded showing title block, or included in binder pockets				
▪ Multiple volumes labeled "Vol. 1", "Vol. 2", etc.				
▪ Table of contents for entire set in each binder				
ELECTRONIC O&M MANUALS				
▪ Minimum one (1) copy on CD-ROM				
▪ Full version of O&M manual in PDF format				
▪ Separate text and drawing files used to create PDF O&M manual				
▪ Index on CD-ROM as separate file titled "index"				
▪ CD-ROM and case labeled				
TECHNICAL CONTENT				
▪ Diagrams and illustrations, including pump curves				
▪ Detailed description of function of principal components				
▪ Performance and nameplate data				
▪ Installation instructions				

DISPOSITION	ACCEPTABLE? YES	NO	NA	COMMENTS
▪ Starting procedure				
▪ Proper adjustment procedure.....				
▪ Test procedures				
▪ Operating procedure.....				
▪ Shutdown instructions				
▪ Emergency operating instructions & troubleshooting....				
▪ Safety instructions				
▪ Maintenance and overhaul instructions				
▪ Lubrication instructions				
▪ List of electrical relay settings and control and alarm contact settings				
▪ Electrical interconnection wiring diagrams, including control and lighting systems				
▪ Recommended spare parts and special tools				

SECTION 01400

QUALITY CONTROL

PART 1 - GENERAL

1.1 OBSERVATION AND SUPERVISION

A. The ENGINEER or ENGINEER's appointed representative will review the Work and the CONTRACTOR shall provide facilities and access to the Work at all times as required to facilitate this review.

B. Responsibility:
   1. The CONTRACTOR shall be solely responsible to supervise and direct the entire Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to complete the Work in accordance with the Contract Documents.
   2. The CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences, quality control, and procedures of construction and safety precautions and programs incidental thereto.
   3. The foregoing includes work performed by the CONTRACTOR's Subcontractors.
   4. The CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.

C. Superintendent:
   1. The CONTRACTOR shall designate in writing and keep on the work site at all times during its progress a technically qualified, English-speaking superintendent, who shall not be replaced without written acceptance of the ENGINEER.
   2. The superintendent shall be the CONTRACTOR's representative at the job site and shall have authority to act on behalf of the CONTRACTOR.
   3. All communications given to the superintendent shall be as binding as if given to the CONTRACTOR.
   4. The CONTRACTOR's superintendent shall be present at the site of the Work at all times while work is in progress. Failure to observe this requirement shall be considered as suspension of the Work by the CONTRACTOR until such time as such superintendent is again present at the site.

1.2 RESPONSIBILITY

A. The CONTRACTOR is responsible for conducting all testing and inspection specifically required by the Specifications and otherwise necessary to ensure compliance with the Contract Documents.
   1. Approval of Testing Laboratories:
      a. All laboratory work under this contract shall be performed by a laboratory approved by the ENGINEER, whether the laboratory is employed by the CONTRACTOR, or is owned and operated by the CONTRACTOR.
      b. The basis of approval includes the following:
         1) Testing laboratories performing work in connection with concrete, steel, and bituminous materials shall comply with ASTM E 329 and ASTM D 3666, respectively.

2) Testing laboratories performing work not in connection with concrete, steel, bituminous materials, soils and non-destructive testing shall comply with ASTM E 548.

B. The ENGINEER may conduct periodic independent testing and inspection to verify compliance with the Contract Documents.

C. Retesting:
1. The OWNER reserves the right to back-charge the CONTRACTOR for retesting of deficient or defective work or products upon written notification.
2. Compensation for retesting on behalf of the OWNER will be made through deductions from the Progress Payments.

D. The CONTRACTOR is responsible for correcting all defective work discovered prior to final acceptance of the Contract, despite the failure of the Inspector(s) to discover it.

1.3 TESTS AND INSPECTIONS

A. The CONTRACTOR shall be responsible for scheduling all tests required.

B. The CONTRACTOR shall pay for all tests including, but not limited to:
1. Inspections and tests necessary to comply with laws, ordinances, rules, regulations and orders of public authorities pursuant to General Conditions.
2. Mix designs, including tests of trial batches, on concrete mixes.
3. Tests of materials, inspections, and certifications required by the Specifications.
4. Testing, adjusting, and balancing of equipment and systems required by the Specifications.
5. One tension and elongation test for each 5 tons of steel or fractional part thereof for each size will be required, unless the steel can be identified by heat or melt numbers and is accompanied by mill analysis and test reports. Commercial stock may be used, subject to approval of the ENGINEER.
6. Any testing performed by the CONTRACTOR for their own quality control (e.g., compaction tests).
7. Retests or re-inspections by the OWNER, if required, and tests or inspections required due to CONTRACTOR error or lack of required identifications of material.
8. Any and all water used by the CONTRACTOR in any testing.

C. Two copies of the agency or laboratory report of each test or inspection shall be provided to the ENGINEER. All tests of materials shall be made in accordance with the commonly recognized standards of national technical organizations, and such other special methods and tests as are prescribed in the Contract Documents.

D. Purchase Orders:
1. One copy of each of the CONTRACTOR's purchase orders for materials forming a portion of the work shall be furnished to the ENGINEER, if requested.
2. Each such purchase order shall contain a statement that the materials included in the order are subject to inspection by the OWNER.
3. Materials purchased locally will be inspected at the point of manufacture or supply, and materials supplied from points more than 50 miles from the job site will be inspected upon arrival at the job, except when other inspection requirements are provided for specific materials in other Sections of this Specification.

E. Samples:

1. The CONTRACTOR shall furnish samples of materials as are required by the ENGINEER, without charge.
2. No material shall be used until the ENGINEER has had the opportunity to test or examine such materials.
3. Samples will be secured and tested whenever necessary to determine the quality of the material.
4. Samples and test specimens prepared at the job site, such as concrete test cylinders, shall be taken or prepared by the ENGINEER in the presence and with the assistance of the CONTRACTOR.

1.4 AUTHORITY AND DUTIES OF INSPECTOR

A. Inspectors employed by the OWNER shall be authorized to inspect all work done and materials and equipment furnished to complement the CONTRACTOR furnished independent inspector.
   1. Such inspection may extend to all or any part of the work, and to the preparation, fabrication, or manufacture of the materials and equipment to be used.
   2. The Inspector will not alter or waive the provisions of the Contract Documents.
   3. The Inspector will keep the ENGINEER informed as to the progress of the work and the manner in which it is being done.
   4. The Inspector will call the CONTRACTOR's attention to nonconformance with the Contract Documents that the Inspector may have observed.
   5. The Inspector will not be responsible for the adequacy or correctness of the CONTRACTOR's means, methods, techniques, sequences, or procedures for construction.
   6. The Inspector will not approve or accept any portion of the work, issue instructions contrary to the Contract Documents, or act as foreman for the CONTRACTOR.
   7. The Inspector may reject defective materials, equipment, or work when it is not in compliance with the Contract Documents.
   8. The Inspector will not be responsible for:
      a. The CONTRACTOR's quality control program.
      b. The CONTRACTOR's safety program.
      c. Coordinating the work or activities of the CONTRACTOR or their Subcontractor.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01420

REFERENCE STANDARDS AND ABBREVIATIONS

PART 1 - GENERAL

1.1 REFERENCE STANDARDS

A. The standards referred to, except as modified, shall have full force and effect as though printed in this Specification, and shall be the latest edition or revision thereof in effect on the bid opening date, unless a particular edition or issue is indicated. Copies of these standards are not available from the OWNER.

B. The ENGINEER will furnish, upon request, information as to how copies may be obtained.

C. Abbreviations and terms, or pronouns in place of them, shall be interpreted as follows:

AAMA:	Architectural Aluminum Manufacturer's Association
AAN:	American Association of Nurserymen
AAR:	Association of American Railroads
AASHTO:	American Association of State Highway and Transportation Officials, Standard Specifications
AATCC:	American Association of Textile Chemists and Colorists
ACI:	American Concrete Institute, Standards
AFBMA:	Anti-Friction Bearing Manufacturer's Association, Inc.
AGA:	American Gas Association
AGC:	Associated General Contractors
AGMA:	American Gear Manufacturer's Association
AHAM:	Association of Home Appliance Manufacturer's
AI:	The Asphalt Institute
AIA:	American Institute of Architects
AISC:	American Institute of Steel Construction, Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings, and the AISC Code of Standard Practice
AISI:	American Iron and Steel Institute
AITC:	American Institute of Timber Construction
AMCA:	Air Moving and Conditioning Association, Standards
ANS:	American Nuclear Society
ANSI:	American National Standards Institute
APA:	American Plywood Association
API:	American Petroleum Institute
APWA:	American Public Works Association, Standard Specifications for Public Works Construction
ASA:	Acoustical Society of America
ASAE:	American Society of Agriculture Engineers
ASCE:	American Society of Civil Engineers
ASHRAE:	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASLE:	American Society of Lubricating Engineers
ASME:	American Society of Mechanical Engineers

ASQC:	American Society of Quality Control
ASSE:	American Society of Sanitary Engineers
ASTM:	American Society for Testing and Materials, Standards
AWG:	American Wire Gauge
AWPA:	American Wood-Preservers' Association, Standards
AWPI:	American Wood Preservers Institute
AWS:	American Welding Society
AWWA:	American Water Works Association, Standards
BBC:	Basic Building Code, Building Officials and Code Administrators International
BHMA:	Builders Hardware Manufacturer's Association
CBM:	Certified Ballast Manufacturer's
CEMA:	Conveyors Equipment Manufacturer's Association
CGA:	Compressed Gas Association
CISPI:	Cast Iron Soil Pipe Institute, Standards
CLFMI:	Chain Link Fence Manufacturer's Institute
CMAA:	Crane Manufacturers' Association of America
CMA:	Concrete Masonry Association
CRSI:	Concrete Reinforcing Steel Institute, Standards
DCDMA:	Diamond Core Drill Manufacturer's Association
EIA:	Electronic Industries Association
ETL:	Electrical Test Laboratories
FED/OSHA:	Federal Occupational Safety and Health Administration, Standards
FM:	Factory Mutual
ICBO:	International Conference of Building Officials
ICEA:	Insulated Cable Engineers Association
IEEE:	Institute of Electrical and Electronic Engineers
IES:	Illuminating Engineering Society
IME:	Institute of Makers of Explosives
IP:	Institute of Petroleum (London)
IPC:	Institute of Printed Circuits
IPCEA:	Insulated Power Cable Engineers Association
ISA:	Instrument Society of America
ISO:	International Organization of Standardization
ITE:	Institute of Traffic Engineers
MBMA:	Metal Building Manufacturer's Association
MPTA:	Mechanical Power Transmission of Association
MTI:	Marine Testing Institute
MSS:	Manufacturers Standardization Society
NAAM:	National Association of Architectural Metal Manufacturers
NACE:	National Association of Corrosion Engineers, Standards
NBS:	National Bureau of Standards
NCCLS:	National Committee for Clinical Laboratory Standards
NEC:	National Electric Code
NEMA:	National Electrical Manufacturers' Association, Standards
NFPA:	National Fire Protection Association
NFPA:	National Forest Products Association
NGLI:	National Lubricating Grease Institute
NMA:	National Microfilm Association

NWMA:	National Woodwork Manufacturers Association
OSHA:	Occupational Safety and Health Administration
PCA:	Portland Cement Association
PCI:	Prestressed Concrete Institute
RIS:	Redwood Inspection Service, Standard Specifications
RVIA:	Recreational Vehicle Industry Association
RWMA:	Resistance Welder Manufacturer's Association
SAE:	Society of Automotive Engineers
SAMA:	Scientific Apparatus Makers Association
SDI:	Steel Door Institute
SIS:	Swedish Standards Association
SMA:	Screen Manufacturer's Association
SMACNA:	Sheet Metal and Air Conditioning Contractors National Association
SPR:	Simplified Practice Recommendation
SSBC:	Southern Standard Building Code, Southern Building Code Congress
SSPC:	Steel Structures Painting Council, Specifications
SSPWC:	Standard Specifications for Public Works Construction
TAPPI:	Technical Association of the Pulp and Paper Industry
TFI:	The Fertilizer Institute
UBC:	Uniform Building Code of the International Conference of Building Officials
UPC:	Uniform Plumbing Code
UL:	Underwriters Laboratories
WCLA:	West Coast Lumbermen's Association, Standard Grading and Dressing Rules
WCLIB:	West Coast Lumber Inspection Bureau
WCRSI:	Western Concrete Reinforcing Steel Institute
WRI:	Wire Reinforcement Institute, Inc.
WWPA:	Western Wood Products Association

1.2 OTHER ABBREVIATIONS

A. Other common abbreviations that may be found in the Specifications are, but may not be limited to:

acrylonitrile butadiene styrene	ABS
alternating current	a-c, AC
American wire gauge	AWG
ante meridiem	am
ampere	A, amp
average	avg
biochemical oxygen demand	BOD
brake horsepower	bhp
British thermal unit	Btu
Centigrade	C
chlorinated polyvinyl chloride	CPVC
company	Co
cubic inch	cu in, in^3
cubic foot	cu ft, CF, ft^3
cubic yard	cu yd, CY, yd^3
cubic feet per minute	cfm, ft^3/min
cubic feet per second	cfs, ft^3/s
decibel	dB
decibels, A-weighted	dBA
degree Centigrade (Celsius)	°C, C
degree Fahrenheit	°F, F
diameter	diam, ø
direct current	d-c, DC
dollars	$
ductile iron	DI
efficiency	eff
exhaust fan	EF

Fahrenheit	F
feet	ft
feet per hour	fph, ft/h
feet per minute	fpm, ft/min
feet per second	fps, ft/s
fiberglass reinforced plastic	FRP
figure	Fig.
flange	flg
foot-pound	ft-lb
gallon	gal
gallons per hour	gph, gal/hr
gallons per minute	gpm, gal/min
elevation	El., Elev
ethylene proplylene rubber	EPDM
each	ea, @
input/output	I/O
inside diameter	ID
instrumentation and control	I&C
kilovolt	kV
kilovolt-ampere	kVA
kilowatt	kW
kilowatt-hour	kWhr
length	L
length to least radius of gyration	L/r
light emitting diode	LED
linear	lin
linear foot	lin ft
liter	l
manhole	MH
maximum	max
mean sea level	MSL
mercury	Hg
miles per hour	mph
milli-amp	mA
milliampere DC	mAdc
milligram	mg
milligrams per liter	mg/l
milliliter	ml
millimeter	mm
million gallon	mil
million gallons per day	mgd
minimum	min
gallons per second	gps, gal/s
gram	g
ground fault current interrupter	GFCI
hand/off/automatic	HOA
heating, ventilating, and air conditioning	HVAC
Hertz	Hz
hour	hr
horsepower	hp
inch	in
inch-pound	in-lb
motor control center	MCC
net positive suction head available	NPSHA
net positive suction head required	NPSHR
number	No., #
National Pipe Thread	NPT
Operation and Maintenance	O&M
ounce	oz
outside diameter	OD
parts per million	ppm
post meridiem	pm
plus or minus	+/-, ±
polytetrafluorethylene	PTFE
polyvinyl chloride	PVC
pound	lb
pounds per square foot	psf, lb/ft²
pounds per square inch	psi, lb/in²
pounds per square inch absolute	psia
pounds per square inch gage	psig
Process and Instrumentation Diagrams	P&ID
random access memory	RAM
reinforced concrete pipe	RCP
reinforced concrete cylinder pipe	RCCP
relative humidity	RH
revolutions per minute	rpm
second	sec, s

specific gravity	sp gr
square foot	sq ft, SF, ft^2
square inch	sq in, in^2
square yard	sq yd, SY, yd^2
stainless steel	SS
standard	std
standard cubic feet per minute	scfm
symmetrical	sym.
total dynamic head	tdh
totally-enclosed, fan-cooled	TEFC
totally-enclosed, non-ventilated	TENV
twisted shielded	TWSH
ultraviolet	UV
United States	US, USA
variable frequency drive	VFD, AFD
volt	V
volts alternating current	VAC
volts direct current	VDC
water to cement	W/C, wc
water column	W.C.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES AND UTILITIES

PART 1 - GENERAL

1.1 CONTRACTOR'S STAGING AREA AND WORK ACCESS PLAN

A. The CONTRACTOR shall limit the location of the storage of equipment and materials to the staging area(s) designated on the Drawings and as directed by the ENGINEER.

B. The CONTRACTOR shall make their own arrangements for additional space that may be required and shall bear all associated costs.

C. The CONTRACTOR shall submit a work access plan showing the planned access route for deliveries of supplies and mobilization of work force for ENGINEER's approval prior to mobilization.

D. On-Site Project Office:
   1. The CONTRACTOR shall maintain near the work in progress a suitable office or other protected area in which shall be kept project copies of the Contract Documents, project progress records, project schedule, shop drawings and other relevant documents which shall be accessible to the OWNER and ENGINEER during normal working hours.
   2. The CONTRACTOR shall make their own arrangements for additional space that may be required and bear all associated costs.

E. Temporary Facilities Plan:
   1. The CONTRACTOR shall submit to the ENGINEER for approval, as part of the mobilization effort, the proposed plan and layout for all temporary offices, sanitary facilities, temporary construction roads, storage buildings, storage yards, temporary water service and distribution, temporary telephone and temporary power service and distribution.
   2. The plan shall show all temporary fencing and gates and all proposed access to the work areas.
   3. Prior to the removal of existing fence, the CONTRACTOR shall provide temporary security fencing at least equal to the existing chain link and barbed wire fencing to protect the existing facilities and structures.

F. Access Roads:
   1. The CONTRACTOR shall "winterize" all access roads to provide a surface reasonably satisfactory for traffic during wet winter months.
   2. The roads shall be gravel surfaced, even, free from humps and depressions.
   3. All costs of complying with this requirement shall be included in the lump sum bid.

1.2 STORAGE - GENERAL

A. The CONTRACTOR shall provide any temporary storage required for the protection of equipment and materials as recommended by manufacturers of such materials.

1.3 STORAGE BUILDINGS

A. The CONTRACTOR shall erect or provide temporary storage buildings of the various sizes as required for the protection of mechanical and electrical equipment and materials as recommended by manufacturers of such equipment and materials.

B. The buildings shall be provided with such environmental control systems that meet recommendations of manufacturers of all equipment and materials stored in the buildings.

C. The buildings shall be of sufficient size and so arranged or partitioned to provide security for their contents and provide ready access for inspection and inventory.

D. At or near the completion of the work, and as directed by the ENGINEER, the temporary storage buildings shall be dismantled, removed from the site, and remain the property of the CONTRACTOR.

E. Combustible materials (paints, solvents, fuels, etc.) shall be safely stored and separated in accordance with the manufacturer's requirements and in compliance with hazardous material storage requirements. CONTRACTOR shall be responsible for providing proper storage buildings for combustible materials.

1.4 STORAGE YARDS

A. The CONTRACTOR shall provide temporary storage yards as required for the storage of materials that are not subject to damage by weather conditions.

B. Materials such as pipe, reinforcing and structural steel, shall be stored on pallets or racks, off the ground, and stored in a manner to allow ready access for inspection and inventory.

C. Temporary gravel surfacing of the storage yards shall meet with the approval of the ENGINEER.

1.5 PARKING AREAS

A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, OWNER's operations, or construction operations.

1.6 VEHICULAR TRAFFIC

A. Comply with Laws and Regulations regarding closing or restricting use of public streets or highways. No public or private road shall be closed, except by written permission of proper authority. Assure the least possible obstruction to traffic and normal commercial pursuits.

B. Conduct the Work to interfere as little as possible with public travel, whether vehicular or pedestrian.

C. Whenever it is necessary to cross, close, or obstruct roads, driveways, and walks, whether public or private, provide and maintain suitable and safe bridges, detours, or other temporary expedients for accommodation of public and private travel.

1.7 DELIVERY-STORAGE-HANDLING

A. General:
   1. The CONTRACTOR shall deliver, handle, and store materials and equipment in accordance with supplier's written recommendations and by methods and means which will prevent damage, deterioration, and loss including theft.
   2. Delivery schedules shall be controlled to minimize long-term storage at the site and overcrowding of construction spaces.
   3. In particular, the CONTRACTOR shall provide delivery/ installation coordination to ensure minimum holding or storage for material or equipment recognized to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other sources of loss.

B. Transportation and Handling:
   1. Materials and equipment shall be transported by methods to avoid damage and shall be delivered in dry, undamaged condition in supplier's unopened containers or packaging.
   2. The CONTRACTOR shall provide equipment and personnel to handle the materials, and equipment by methods that will prevent soiling and damage.
   3. The CONTRACTOR shall provide additional protection during handling to prevent marring and otherwise damaging packaging, and surrounding surfaces.

C. Storage and Protection:
   1. Materials and equipment shall be stored in accordance with supplier's written instructions, with seals and labels intact and legible. Exposed metal surfaces of valves, fittings and similar materials shall be coated with grease in accordance with manufacturer's recommendations to prevent corrosion. Sensitive materials and equipment shall be stored in weather-tight enclosures and temperature and humidity ranges shall be maintained within tolerances required by supplier's written instructions.
   2. For exterior storage of fabricated materials, they shall be placed on sloped support above ground. Materials or equipment subject to deterioration shall be covered with impervious sheet covering; ventilation shall be provided to avoid condensation.
   3. Loose granular materials shall be stored on solid surfaces in a well-drained area and shall be prevented from mixing with foreign matter.
   4. Inspection:
      a. Storage shall be arranged to provide access for inspection.
      b. The CONTRACTOR shall periodically inspect to assure materials and equipment are undamaged and are maintained under required conditions.
   5. Storage shall be arranged in a manner to provide access for maintenance of stored items.

1.8 PROJECT SECURITY

A. The CONTRACTOR shall make adequate provision for the protection of the work area against fire, theft and vandalism, and for the protection of the public and OWNER personnel against exposure to injury, and for the security of any off-site storage areas.

B. All costs for this protection shall be included within the CONTRACTOR's bid.

1.9 TEMPORARY UTILITIES

A. The CONTRACTOR shall provide and pay for all necessary temporary telephones, fuel, power, potable water, sanitary, and proper toilet accommodations. CONTRACTOR shall not use OWNER-owned utilities.

B. The temporary facilities to be provided by the CONTRACTOR as described above shall conform to all requirements in regard to operation, safety, and fire hazards of State and local authorities and of Underwriters.

C. CONTRACTOR shall return the site and facilities to their original "as-found" condition, unless otherwise specified in the Contract Documents, at the completion of the project.

1.10 SOUND CONTROL

A. The CONTRACTOR shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the contract.

B. Each internal combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer, so as to produce a maximum noise level of 85 dBA at 5 feet.

C. No internal combustion engine shall be operated on the project without said muffler.

D. Special Precautions for Inhabited Areas:
   1. In inhabited areas, particularly residential, operations shall be performed in a manner to minimize unnecessary noise generation.
   2. In residential areas, special measures shall be taken to suppress noise generated by repair and service activities during the night hours.

1.11 DUST/AIR POLLUTION CONTROL

A. The CONTRACTOR shall take whatever steps, procedures, or means as are required to prevent dust conditions being caused by operations in connection with the execution of the Work; and on any road which the CONTRACTOR or any of their Subcontractors are using, excavation or fill areas, demolition operations, or other activities.

B. Control shall be by sprinkling, use of dust palliatives, modification of operations, or any other means acceptable to agencies having jurisdiction.

C. Damage to personal property, etc., resulting from the CONTRACTOR's construction operations shall be borne by the CONTRACTOR at no cost to the OWNER.

D. The CONTRACTOR shall keep the streets and work area clean at all times by means of mechanical sweepers or hand sweeping. Water will be used for dust control only, and not for cleaning streets.

E. Burning of waste, rubbish, or other debris will not be permitted on or adjacent to site.

1.12 WASTE DISPOSAL

A. The CONTRACTOR shall dispose of surplus materials, waste products, and debris and shall make necessary arrangements for such disposal. The CONTRACTOR shall obtain written

permission from property owner prior to disposing surplus materials, waste products, or debris on private property.

B. All waste disposal shall be done in accordance with applicable laws and regulations.

C. Landfill Disposal:
   1. If the CONTRACTOR proposes to dispose of construction debris, trench spoils, excavation spoils, etc., at a landfill, the CONTRACTOR shall be responsible to provide and pay for all permits and analyses required by the landfill.
   2. If the analyses determine that the material is hazardous, then an equitable adjustment of the Contract for the cost of hazardous waste disposal will be made in accordance with the General Conditions, and the following:
      a. Time extension or contract costs will not be granted for delays that could have been avoided by the CONTRACTOR redirecting their forces and equipment to perform other work on the contract.

D. Ditches, washes, or drainageways shall not be filled.

E. Disposal operations shall not create unsightly or unsanitary nuisances.

F. The CONTRACTOR shall maintain the disposal site in a condition of good appearance and safety during the construction period.

G. Prior to final acceptance of the work, the CONTRACTOR shall have completed the leveling and cleanup of the disposal site.

1.13 CLEAN UP

A. Throughout the period of construction, the CONTRACTOR shall keep the work site free and clean of all rubbish and debris, and shall promptly remove from the site, or from property adjacent to the site of the work, all unused and rejected materials, surplus earth, concrete, plaster, and debris.

B. Upon completion of the work, and prior to final acceptance, the CONTRACTOR shall remove from the vicinity of the work all plant, surplus material, and equipment belonging to the CONTRACTOR or used under their direction during construction.

1.14 TEMPORARY ENCLOSURES

A. When sandblasting, spray painting, spraying of insulation, or other activities inconveniencing or dangerous to property or the health of employees, the public or construction workers, are in progress, the area of activity shall be enclosed adequately to contain the dust, over spray, or other hazard.

B. In the event there are no permanent enclosures of the area, or such enclosures are incomplete or inadequate, the CONTRACTOR shall provide suitable temporary enclosures as required by the ENGINEER to meet field conditions in accordance with the recommendations of the owner-furnished equipment supplier (if applicable) and the CONTRACTOR's equipment supplier requirements.

C. Said temporary or permanent enclosures shall be adequately ventilated to ensure the safety of the workers.

1.15 DRAINAGE

A. The CONTRACTOR shall take all necessary actions as required to meet discharge requirements of the Texas Commission of Environmental Quality and other pertinent local ordinances and regulations pertaining to dewatering and/or site drainage discharged into storm drains and creeks. This may include, but may not be limited to, the use of retention basins and silt basins to settle most of the solids prior to discharge.

B. In excavation, fill, and grading operations, care shall be taken to disturb the pre-existing drainage pattern as little as possible.

C. Particular care shall be taken not to direct drainage water onto private property or into streets or drainageways inadequate for the increased flow.

D. Drainage means shall be provided to protect the work.

1.16 TEMPORARY LIGHTING

A. The CONTRACTOR shall provide temporary lighting in all work areas sufficient to maintain a lighting level during working hours not less than the lighting level required by OSHA standards.

1.17 CONSTRUCTION FACILITIES

A. Construction hoists, elevators, scaffolds, stages, shoring, and similar temporary facilities shall be of ample size and capacity to adequately support and move the loads to which they will be subjected. Railings, enclosures, safety devices, and controls required by law or for adequate protection of life and property shall be provided.

B. Temporary supports shall be designed with an adequate safety factor to assure adequate load bearing capability. Whenever required by safety regulations, the CONTRACTOR shall submit design calculations for staging and shoring prior to application of loads.

1.18 REMOVAL OF TEMPORARY FACILITIES AND UTILITIES

A. At such time or times as any temporary construction facilities and utilities are no longer required for the work, the CONTRACTOR shall notify the ENGINEER of their intent and schedule for removal of the temporary facilities and utilities, and obtain the ENGINEER's approval before removing the same.

B. As approved, the CONTRACTOR shall remove the temporary facilities and utilities from the site as CONTRACTOR’s property and leave the site in such condition as specified, as directed by the ENGINEER, and/or as shown on the Drawings.

C. In unfinished areas, such as planted medians, the condition of the site shall be left in a condition that will restore original drainage, evenly graded, seeded or planted as necessary, and left with an appearance equal to, or better than original.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01505

MOBILIZATION

PART 1 - GENERAL

1.1 GENERAL

A. Mobilization shall include the obtaining of all bonds, insurance, and licenses; moving onto the site of all plant and equipment; furnishing and erecting plants, temporary buildings, and other construction facilities; all as required for the proper performance and completion of the work.

B. Mobilization shall include but not be limited to the following principal items:
   1. Moving on to the site of all CONTRACTOR's plant and equipment.
   2. Installing temporary construction power, wiring, and lighting facilities.
   3. Establishing fire protection system.
   4. Developing construction water supply.
   5. Furnishing the work access plan as specified in Section 01500, Temporary Construction Facilities and Utilities.
   6. Providing all on-site CONTRACTOR communication facilities, including telephones, and radio pagers and any radio communications facilities required for the CONTRACTOR to coordinate their forces.
   7. Providing on-site sanitary facilities and potable water facilities as specified in Section 01500, Temporary Construction Facilities and Utilities.
   8. Arranging for and erection of the CONTRACTOR's work and storage yard, including site security.
   9. Posting all EPA and OSHA required notices and establishment of safety programs.
   10. Post all required labor and EEOE notices.
   11. Have the CONTRACTOR's superintendent at the job site full time.
   12. Submittal and OWNER acceptance of the Construction Schedule.
   13. Establishing site security, lighting, fencing, and signing.
   14. Obtaining all bonds, insurance and licenses.
   15. Providing an organization chart of the project and for the CONTRACTOR's firm. The project chart shall include the name, title and responsibilities of each position which is involved in the work.
   16. Other mobilization items approved by the ENGINEER required to support the complete work (e.g., Health and Safety Plans for Hazardous Waste).

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01610

GENERAL EQUIPMENT REQUIREMENTS

PART 1 - GENERAL

1.1 SCOPE

A. All equipment furnished and installed under this contract shall conform to the general stipulations set forth in this Section except as otherwise specified in other Sections.

1.2 COORDINATION

A. The CONTRACTOR shall coordinate all details of the equipment with other related parts of the work, including verification that all structures, piping, wiring, and equipment components are compatible. The CONTRACTOR shall be responsible for all structural and other alterations in the work required to accommodate equipment differing in dimensions or other characteristics from that contemplated in the Contract Drawings or Specifications.

1.3 DESIGN REQUIREMENTS

A. Where CONTRACTOR design is specified, design of installation, systems, equipment, and components, including supports and anchorage, shall be in accordance with provisions of 2003 edition of the International Building Code (IBC).

B. Proof of Compliance:
   1. Structural integrity and anchorage shall be certified by an approved calculation that demonstrates the adequacy of the anchorage system for seismic forces. This calculation may be based on principles of structural analysis and engineering mechanics, or based on similarity to approved shake-table tests.
   2. The CONTRACTOR shall submit for review and approval test data or calculations certified by a Civil or Structural Engineer registered in the State of Texas to show compliance with the above requirements.

1.4 ENVIRONMENTAL REQUIREMENTS

A. Altitude: Provide materials and equipment suitable for installation and operation under rated conditions at 160 feet above sea level.

B. Provide equipment and devices installed outdoors or in unheated enclosures capable of continuous operation within an ambient temperature range of -10 degrees F to 120 degrees F.

1.5 WORKMANSHIP AND MATERIALS

A. The CONTRACTOR shall guarantee all equipment against faulty or inadequate design, improper assembly or erection, defective workmanship or materials, and leakage, breakage, or other failure. Materials shall be suitable for service conditions.

B. All equipment shall be designed, fabricated, and assembled in accordance with recognized and acceptable engineering and shop practice. Individual parts shall be manufactured to

standard sizes and gages so that repair parts, furnished at any time, can be installed in the field. Like parts of duplicate units shall be interchangeable. Equipment shall not have been in service at any time prior to delivery, except as required by tests.

C. Except where otherwise specified, structural and miscellaneous fabricated steel used in equipment shall conform to AISC standards. All structural members shall be designed for shock or vibratory loads. Unless otherwise specified, all steel which will be submerged, all or in part, during normal operation of the equipment shall be at least 1/4 inch thick.

D. Except where otherwise specified, all metal which will be exposed to weather, submerged or otherwise exposed to moisture shall be either non-ferrous or stainless steel, as the application may require.

1.6 LUBRICATION

A. Equipment shall be adequately lubricated by systems which require attention no more frequently than weekly during continuous operation. Lubrication systems shall not require attention during startup or shutdown and shall not waste lubricants.

B. Lubricants of the type recommended by the equipment manufacturer shall be provided in sufficient quantity to fill all lubricant reservoirs and to replace all consumption during testing, startup, and operation prior to acceptance of equipment by OWNER. Unless otherwise specified or permitted, the use of synthetic lubricants will not be acceptable.

C. Lubrication facilities shall be convenient and accessible. Oil drains and fill openings shall be easily accessible from the normal operating area or platform. Drains shall allow for convenient collection of waste oil in containers from the normal operating area or platform without removing the unit from its normal installed position.

1.7 ELECTRIC MOTORS

A. Unless otherwise specified, motors furnished with equipment shall meet the following requirements:
   1. Designed and applied in accordance with NEMA, ANSI, IEEE, AFBMA, and NEC for the duty service imposed by the driven equipment, such as frequent starting, intermittent overload, high inertia, mounting configuration, or service environment.
   2. Rated for continuous duty at 40oC ambient, unless the application is well recognized for intermittent duty service as a standard industry practice.
   3. Insulated with Class F insulation and designed for a service factor of 1.15, or greater.
   4. Three phase motors used in conjunction with variable speed drives shall have Class F insulation with a Class B temperature rise at rated nameplate horsepower, and 1.15 service factor.
   5. When operating at service factor load, maximum observable temperature rise of insulation and motor parts, as determined by resistance or thermometer methods, shall not exceed the NEMA allowable limits for the type of motor, the type of enclosure, and the particular application with regard to continuous or intermittent duty.
   6. To ensure long motor life, nameplate horsepower, regardless of service factor, shall be at least 115 percent of the maximum load imposed by the driven equipment.
   7. Designed for full voltage starting.
   8. Designed to operate from an electrical system that may have a maximum of 5 percent voltage distortion per IEEE Standard 519.
   9. Derated, if required, for the altitude at which the equipment is installed.

10. Clamp-type grounding terminal shall be inside motor conduit box.
11. External conduit boxes shall be oversized at least one size larger than NEMA standard.
12. Totally enclosed motors shall have a continuous moisture drain which also excludes insects.
13. Bearings shall be either oil or grease lubricated.
14. Manufacturer's standard motor may be supplied on integrally constructed, packaged assemblies such as appliances, tools, unit heaters, and similar equipment specified by model number, in which case a redesign of the unit would be required to furnish motors of other than the manufacturer's standard design. However, in all cases, totally enclosed motors are preferred and shall be furnished if offered by the manufacturer as a standard option.
15. Totally enclosed motors shall be furnished on:
    a. Equipment for installation below grade.
    b. Equipment operating in wet or dust-laden locations.
16. Drip-proof motors, or totally enclosed motors at the supplier's option, shall be furnished on equipment in indoor, above-grade, clean, and dry locations.
17. Explosion-proof or submersible motors shall be furnished as required by applicable codes, as specified in other Sections, or at the supplier's option.
18. Motors shall be rated and constructed as follows:
    a. Below 1/2 hp:
        1) 115 volts, 60 Hz, single phase.
        2) Built-in manual-reset thermal protector, or integrally mounted stainless steel enclosed manual motor starter.
    b. 1/2 hp and above:
        1) 460 volts, 60 Hz, 3 phase.
        2) Where specified or required by the drawings, motors used on 240 volt systems shall be 230 volts, 60 Hz, 3 phase.

1.8 DRIVE UNITS

A. The nominal input horsepower rating of each gear or speed reducer shall be at least equal to the nameplate horsepower of the drive motor. Drive units shall be designed for 24 hours continuous service.

B. Unless otherwise specified, the use of gearmotors will not be acceptable.

C. Gear reducers:
    1. Each gear reducer shall be a totally enclosed unit with oil or grease lubricated antifriction, rolling element bearings throughout.
    2. Helical, spiral bevel, combination bevel-helical, and worm gear reducers shall have a service factor of at least 1.50 based on the nameplate horsepower of the drive motor. Shaft-mounted and flange-mounted gear reducers shall be rated AGMA Class II. Helical gear reducers shall have a gear strength rating to catalog rating of 1.5. Each gear reducer shall bear an AGMA nameplate.
    3. The thermal horsepower rating of each unit shall equal or exceed the nameplate horsepower of the drive motor. During continuous operation, the maximum sump oil temperature shall not rise more than 100^{o}F above the ambient air temperature in the vicinity of the unit and shall not exceed 200^{o}F.
    4. Bearings:
        a. Each grease lubricated bearing shall be installed in a bearing housing designed to facilitate periodic regreasing of the bearing by means of a manually operated grease gun.

b. Each bearing housing shall be designed to evenly distribute new grease, to properly dispose of old grease, and to prevent overgreasing of the bearing.
c. The use of permanently sealed, grease lubricated bearings will not be acceptable.
d. An internal or external oil pump and appurtenances shall be provided if required to properly lubricate oil lubricated bearings.
e. A dipstick or sight glass arranged to permit visual inspection of lubricant level shall be provided on each unit.

5. Gear reducers that require the removal of parts or periodic disassembly of the unit for cleaning and manual regreasing of bearings will not be acceptable.
6. Certification shall be furnished by the gear reducer manufacturer indicating that the intended application of each unit has been reviewed in detail by the manufacturer and that the unit provided is fully compatible with the conditions of installation and service.

D. V-belt drives:
1. Each V-belt drive shall include a sliding base or other suitable tension adjustment. V-belt drives shall have a service factor of at least 1.6 at maximum speed based on the nameplate horsepower of the drive motor.

1.9 SAFETY GUARDS

A. All belt or chain drives, fan blades, couplings, and other moving or rotating parts shall be covered on all sides by a safety guard.

B. Safety guards shall be fabricated from 16 USS gauge or heavier galvanized or aluminum-clad sheet steel or 1/2 inch mesh galvanized expanded metal.

C. Each guard shall be designed for easy installation and removal.

D. All necessary supports and accessories shall be provided for each guard. Supports and accessories, including bolts, shall be galvanized.

E. All safety guards in outdoor locations shall be designed to prevent the entrance of rain and dripping water.

1.10 ANCHOR BOLTS

A. Equipment suppliers shall furnish suitable anchor bolts for each item of equipment.

B. Anchor bolts, together with templates or setting drawings, shall be delivered sufficiently early to permit setting the anchor bolts when the structural concrete is placed.

C. Anchor bolts shall comply with Section 05051, Anchors, Inserts and Epoxy Dowels and, unless otherwise specified, shall have a minimum diameter of 1/2-inch.

D. Unless otherwise indicated or specified, anchor bolts for items of equipment mounted on baseplates shall be long enough to permit 1-1/2 inches of grout beneath the baseplate and to provide adequate anchorage into structural concrete.

1.11 EQUIPMENT BASES

A. Unless otherwise indicated or specified, all equipment shall be installed on concrete bases at least 6 inches high.

B. Cast iron or welded steel baseplates shall be provided for pumps, compressors, and other equipment.

C. Each unit and its drive assembly shall be supported on a single baseplate of neat design.

D. Baseplates shall have pads for anchoring all components and adequate grout holes.

E. Baseplates for pumps shall have a means for collecting leakage and a threaded drain connection.

F. Baseplates shall be anchored to the concrete base with suitable anchor bolts and the space beneath filled with grout as specified in Section 03600, Grout.

1.12 SPECIAL TOOLS AND ACCESSORIES

A. Equipment requiring periodic repair and adjustment shall be furnished complete with all special tools, instruments, and accessories required for proper maintenance. Equipment requiring special devices for lifting or handling shall be furnished complete with those devices.

1.13 SHOP PAINTING

A. Surface Protection:
   1. All steel and iron surfaces shall be protected by suitable paint or coatings applied in the shop.
   2. Surfaces that will be inaccessible after assembly shall be protected for the life of the equipment.
   3. Exposed surfaces shall be finished smooth, thoroughly cleaned, and filled as necessary to provide a smooth uniform base for painting.
   4. Electric motors, speed reducers, starters, and other self-contained or enclosed components shall be shop primed or finished with a high-grade oil-resistant enamel suitable for coating in the field with an alkyd enamel.
   5. Coatings shall be suitable for the environment where the equipment is installed.

B. Shop Primer:
   1. Surfaces to be painted after installation shall be prepared for painting as recommended by the paint manufacturer for the intended service, and then shop painted with one or more coats of the specified primer.
   2. Unless otherwise specified, the shop primer for steel and iron surfaces shall be:
      a. Cook "391-N-167 Barrier Coat",
      b. Koppers "No. 10 Inhibitive Primer",
      c. Tnemec "37H Chem-Prime HS",
      d. Valspar "13-R-28 Chromox Primer",
      e. Or equal.

C. Machined, polished, and nonferrous surfaces which are not to be painted shall be coated with rust-preventive compound, Houghton "Rust Veto 344", Rust-Oleum "R-9", or equal.

1.14 PREPARATION FOR SHIPMENT

A. All equipment shall be suitably packaged to facilitate handling and protect against damage during transit and storage. All equipment shall be boxed, crated, or otherwise completely enclosed and protected during shipment, handling, and storage. All

equipment shall be protected from exposure to the elements and shall be kept thoroughly dry at all times.

B. Painted surfaces shall be protected against impact, abrasion, discoloration, and other damage. All painted surfaces which are damaged prior to acceptance of equipment shall be repainted to the satisfaction of ENGINEER.

C. Grease and lubricating oil shall be applied to all bearings and similar items.

D. Each item of equipment shall be tagged or marked as identified in the delivery schedule or on the Shop Drawings. Complete packing lists and bills of material shall be included with each shipment.

1.15 STORAGE

A. Upon delivery, all equipment and material shall immediately be stored and protected until installed in the work.

B. Pumps, motors, electrical equipment, and all equipment with antifriction or sleeve bearings shall be stored in weathertight structures maintained at a temperature above 60^{o} F. Equipment, controls, and insulation shall be protected against moisture and water damage. All space heaters furnished in equipment shall be connected and operated continuously.

C. Equipment and materials shall not show any pitting, rust, decay, or other deleterious effects of storage when installed in the work.

1.16 INSTALLATION AND OPERATION

A. Equipment shall not be installed or operated except by, or with the guidance of, qualified personnel having the knowledge and experience necessary for proper results. When so specified, or when employees of the CONTRACTOR or their subcontractors are not qualified, such personnel shall be field representatives of the manufacturer of the equipment or materials being installed.

B. Qualified field representatives shall be provided by the equipment manufacturers as required by Section 01750, Testing, Training and Startup.

C. All equipment installed under this Contract, including that furnished by OWNER shall be placed into successful operation according to the written instructions of the manufacturer or the instructions of the manufacturer's field representative. All required adjustments, tests, operation checks, and other startup activity shall be provided.

D. Acceptance of work in connection with the installation of equipment furnished by others will be subject to approval of the field representative. The CONTRACTOR shall be responsible for planning, supervising, and executing the installation of work, and the approval or acceptance of ENGINEER or the field representative will not relieve the CONTRACTOR of responsibility for defective work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01750

TESTING, TRAINING AND STARTUP

PART 1 - GENERAL

1.1 GENERAL

A. Scope:
   1. This Section covers general equipment and system testing and startup requirements, services of the manufacturer's representatives and special coordinating services required of the CONTRACTOR that shall apply during construction and training of the OWNER's personnel for facilities operation.
   2. Specific testing and tracking procedures and requirements found in the Technical Specifications shall also apply.

B. The CONTRACTOR shall inform all Subcontractors and manufacturers of the requirements herein and include the required services in their costs for the work specified in these Contract Documents. Where a minimum amount of time is stated in the Technical Specifications for manufacturers' services, any additional time required to perform the specified services shall be provided at no additional cost to the OWNER.

C. Scheduling:
   1. Equipment testing and plant startup are requisite to satisfactory completion of the Contract and, therefore, shall be completed within the contract time.
   2. All equipment testing and plant startup activities shall be realistically allowed for and shown on the CONTRACTOR's Construction Schedule, in accordance with Section 01320, Progress Schedule.
   3. All equipment testing and plant startup activities shall be scheduled in conformance with the restrictions specified in Section 01130, Special Project Constraints.

D. Equipment testing shall be satisfactorily completed prior to commencing plant startup associated with the particular equipment item or equipment package. The equipment shall not be considered ready for testing until the following conditions are satisfied:
   1. Manufacturer's certification of equipment installation has been accepted by the ENGINEER.
   2. Electrical and/or instrumentation Subcontractor certification of motor control logic has been accepted by the ENGINEER.
   3. Related Technical Submittals, O&M Manual and Final Shop Drawings have been accepted by the ENGINEER.
   4. Operator training services have been furnished by the CONTRACTOR (operational testing only).
   5. Testing procedures have been submitted in writing and accepted by the ENGINEER in accordance with Section 01330, Submittal Procedures. All testing procedures and results shall be submitted in writing.

E. The requirements of plant startup specified herein shall also apply to the startup of individual treatment plant processes and facilities.

F. Startup Plan:

1. Not less than 3 months prior to initial equipment or system startup, the CONTRACTOR shall submit to the ENGINEER for review, a detailed Facilities Startup Plan for the associated items of equipment and/or systems.
2. The Startup Plan shall include:
   a. A detailed sub-network of the CONTRACTOR's Construction Progress Schedule including the following activities:
      1) Manufacturer's Services;
      2) Installation Certifications;
      3) Operator Training;
      4) O&M Manual;
      5) Functional Testing;
      6) Performance Testing;
      7) Operational Testing;
      8) All other activities necessary to affect a coordinated and successful Testing, Training and Startup.
   b. Written testing plan with proposed data logs for each item of equipment to be tested.
   c. A discussion of any coordination required with the Owners staff and/or any system or equipment outage requirements.
   d. The Plan shall be updated and/or revised as necessary prior to subsequent Construction Progress Meetings.
   e. Testing shall not be scheduled earlier than 30 days after approval of the Plan.

1.2 SERVICES DURING CONSTRUCTION

A. General:
   1. Manufacturer’s Representative:
      a. The CONTRACTOR shall provide the services of competent and experienced technical representatives of the manufacturers of all equipment and systems furnished under the contract, for as many days as may be necessary for assembly, installation, testing assistance and operator training.
      b. Manufacturer's field representatives shall observe, instruct, guide, and direct CONTRACTOR's erection or installation procedures, or perform an installation check, as required.
      c. In each case, the CONTRACTOR shall arrange to have the manufacturer's representative revisit the job site as often as necessary until operator training is complete and testing and startup problems have been resolved to the satisfaction of the ENGINEER.
      d. This requirement applies to manufacturers of all equipment furnished (excluding manually operated valves smaller than 24 inches in size, and any other items of equipment specifically exempted by the ENGINEER in writing), whether or not specifically set forth in the Technical Specifications.
      e. The CONTRACTOR shall maintain a service record on each item of equipment and shall deliver these service records to the ENGINEER prior to acceptance of operational testing.

B. Fulfillment of Specified Minimum Services:
   1. The CONTRACTOR shall obtain prior written approval from the ENGINEER for providing manufacturers' services.
   2. All requests to the ENGINEER for prior approval shall (1) be in writing, (2) be submitted not less than 10 calendar days prior to the providing of the subject services, (3) state the service to be provided, and (4) state the reason(s) why the timing of the service is appropriate.

3. Request made to the ENGINEER less than 10 calendar days prior to the manufacturers' services may not receive consideration and response prior to the times the services are provided.
4. Visits of manufacturers and their representatives to the jobsite or training classroom without prior approval as provided herein may not act to fulfill the specified minimum man-day requirements.

C. Certificate of Proper Installation:
   1. Equipment requiring factory tests shall not be delivered to the jobsite until the CONTRACTOR submits acceptable certified test results to the ENGINEER.
   2. Equipment shall not be considered ready for functional testing until after the following certifications have been submitted and accepted by the ENGINEER.
      a. Manufacturer Representatives:
         1) The CONTRACTOR shall require that each manufacturer's representative furnish to the ENGINEER a written and signed report addressed to the OWNER certifying that the equipment has been properly installed, adjusted, lubricated, is in accurate alignment, is free from any undue stress imposed by connecting piping or anchor bolts, has been operated satisfactorily under full-load conditions and is ready for full-time operation.
         2) For pumps, compressors, blowers, engines, motors, and other rotating or reciprocating equipment, the report shall certify that the equipment operates within the manufacturer's allowable limits for vibration.
         3) The report shall also certify that all controls, protective devices, \instrumentation, and control panels furnished as part of the manufacturer's equipment package are properly installed and calibrated; and that the control logic for equipment startup, shutdown, sequencing, interlocks, and emergency shutdown has been tested and is properly operating.
         4) The CONTRACTOR shall also sign said certification.
         5) The CONTRACTOR shall submit "Manufacturer's Certification of Proper Installation" on the OWNER form.
      b. Electrical and Instrumentation Subcontractor:
         1) The CONTRACTOR shall require that the electrical and/or instrumentation Subcontractor shall furnish a written and signed report to the ENGINEER certifying that the motor control logic for the equipment item that resides in motor control centers, control panels, control boards, microprocessors, distributed processing units, computers, and the like furnished by the electrical and/or instrumentation Subcontractor has been properly tested and calibrated.
         2) The report shall certify that the control logic for equipment startup, shutdown, sequencing, interlocks, and emergency shutdown has been tested and is properly operating.
         3) The CONTRACTOR shall also sign said certification.

1.3 STARTUP AND TESTING

A. General:
   1. The CONTRACTOR shall provide the effective coordination of all parties necessary for the successful project startup.
   2. The ENGINEER shall not be responsible to instruct the CONTRACTOR in the startup of the project, however, the ENGINEER will be available prior to and during startup to provide operational and technical support to the CONTRACTOR.

3. The CONTRACTOR shall furnish all labor, consumables (power, water, chemicals, air, etc.) tools, equipment, instruments, and services required and incidental to completing all functional, performance and operational testing of installed equipment.
4. The CONTRACTOR shall submit the proposed test procedures to the ENGINEER for review at least 30 days prior to testing.
5. The CONTRACTOR shall give the ENGINEER written notice confirming the date of testing at least five working days before the time the equipment is scheduled to be tested.
6. All testing shall be witnessed by the ENGINEER to be considered valid.
7. Test Reports:
   a. CONTRACTOR shall submit written detailed results of all functional, performance and operational testing.
   b. Upon successful completion of Operational testing all equipment installation, testing and maintenance records shall be submitted to the ENGINEER.
   c. Said records shall be bound separately for each piece of equipment or system and shall be collected by type of record.
8. For factory tests, written test results shall be submitted to the ENGINEER at least 10 days prior to shipment.

B. Functional testing:
1. All items of mechanical and electrical equipment shall be functionally tested by the CONTRACTOR after installation for proper operation.
2. A minimum of ten (10) days prior to the start of functional testing, the CONTRACTOR shall submit interconnection diagrams for the equipment and for the alarms, controls and instruments associated with the equipment. This requirement shall not relieve the CONTRACTOR of meeting any requirements in the technical specifications for earlier submittal of the interconnection diagrams.
3. Minimum Test Requirements
   a. The functional test of each piece of mechanical equipment shall continue for not less than eight (8) continuous hours without interruption.
   b. The functional test shall include checking for proper rotation, alignment, speed, flows, pressure, vibration, sound level, etc. Initial equipment and system adjustment and calibrations shall be performed in the presence of and with the assistance of the manufacturer's representative.
   c. The functional test shall include a demonstration of the proper performance of all alarms, local and remote controls, instrumentation, equipment functions, and all other electrical, mechanical and piping systems.
   d. All parts shall operate satisfactorily in all respects, under continuous full load, and in accordance with the specified requirements, for the full duration of the eight-hour test period.
   e. If any part of a unit shows evidence of unsatisfactory or improper operation during the eight-hour test period, correction or repairs shall be made and the full eight-hour test operation, as specified herein, shall be repeated after all parts operate satisfactorily.

C. Performance testing:
1. Where performance testing is required by the Technical Specifications, the testing shall be supervised by the manufacturer's representative. These services shall continue until such times as the applicable equipment or system has been successfully tested for performance and has been accepted by the ENGINEER for operational testing.
2. Performance testing shall take place after functional testing is successfully completed in accordance with Article 1.3 B.

3. Performance testing shall demonstrate that the equipment meets all performance requirements specified.

D. Startup/operational testing:
   1. Upon successful completion of operator training and the functional, performance and leakage testing, the CONTRACTOR shall startup the plant facilities and test the equipment operation and performance by conducting a seven (7) day, continuous operational test of the completed facilities as an operational process unit to demonstrate to the ENGINEER's satisfaction that all equipment and systems required by these specifications will operate in the manner in which they are intended to perform.
   2. The OWNER will provide CONTRACTOR-trained operating personnel for the duration of the operational test. Said operation shall be conducted and under the supervision and direction of the CONTRACTOR and/or manufacturer's representative.
   3. Operational Defects:
      a. All defects in materials or workmanship which appear during the operational test shall be immediately corrected by the CONTRACTOR.
      b. In the event of a malfunction or deficiency that results in shutdown or partial operation of a system or process unit or results in performance that is less than that specified, the startup duration shall be repeated for that corresponding system or process unit and any other affected equipment so its proper operation and performance as required by the Contract Documents is demonstrated for a minimum of seven (7) continuous and trouble free days.
   4. If the operational test is interrupted through no fault of the CONTRACTOR the test may resume at the earliest mutually agreeable time.
   5. No unit process or part thereof shall be placed in service until it has successfully completed operational testing.
   6. During plant startup, the CONTRACTOR shall provide the appropriate construction trades and the services of authorized Manufacturer's representatives for operational testing and as necessary, to correct faulty equipment operation.
   7. After completion of all startup/operational testing, the CONTRACTOR shall repaint, hose, scrub, clean up and otherwise return the work to a "like new" condition, prior to OWNER acceptance.

1.4 TRAINING OF OWNER PERSONNEL

A. General:
   1. Operation and maintenance training of OWNER's personnel shall be provided for mechanical, electrical, instrumentation and control equipment as listed in this Section or elsewhere in the Specifications.
   2. For the purposes of this requirement, operations training is considered to be separate from maintenance training. Instructions are to be tailored to the needs of each group.
   3. These training services shall be conducted by the manufacturer's representative and shall ensure measurable and observable means that OWNER personnel are qualified to perform equipment task requirements, including essential knowledge, skills and abilities.
   4. Training shall be conducted by competent representatives who are certified by the manufacturer to be thoroughly familiar with the subject matter as well as instructional methods.
   5. Training materials shall be submitted to the OWNER (see Paragraph 1.4 C below) for review. Acceptance of training materials is required prior to start of training.
   6. All training shall be completed prior to beginning operational testing.

7. The OWNER shall have the right to videotape any or all training sessions, or may designate separate sessions or portions thereof for the sole purpose of videotaping.

B. Training coordinator:
   1. The CONTRACTOR shall designate and provide one or more persons to be responsible for coordinating and expediting training duties.
   2. The person or persons so designated shall be present at all training coordination meetings with the OWNER.

C. Training schedule:
   1. The CONTRACTOR's coordinator shall coordinate the training periods with OWNER's personnel and manufacturer's representatives, and shall submit a training schedule and the training materials for each piece of equipment or system for which training is to be provided.
   2. The training schedule shall be submitted not less than 21 calendar days prior to the time that the associated training is to be provided and shall be based on the then current Plan of Operation.
   3. Equipment and/or systems shall be deemed suitable for use in training upon satisfactory completion of functional testing.
   4. All training with regards to a unit process or part thereof shall be completed prior to the start of operational testing.
   5. As a minimum, training shall be provided on the following equipment and systems:
      a. Perforated Plate Screen
      b. Washer/Compactor
   6. The CONTRACTOR shall provide distinct and separate training sessions for both operations and maintenance personnel, meeting the following criteria:
      a. Maintenance Training:
         1) Maintenance training shall be provided for all items in 1.4.C.5 above.
         2) The CONTRACTOR shall provide two (2) separate training sessions on a day agreed to by the ENGINEER.
         3) Training shall emphasize theory of operations, troubleshooting, and preventative maintenance and repair procedures.
         4) The discussion shall encompass issues relating to instrumentation, electrical, and mechanical systems.
      b. Operations training:
         1) Operations training shall be provided for each piece of equipment listed in Paragraph 1.4.C.5 above.
         2) The CONTRACTOR shall provide two (2) separate training sessions for each three (3) operating shifts.
         3) Sessions are to be provided for each shift within the following time periods.
            a) Day Shift 8:00 a.m. - 4:00 p.m.
      c. Training session schedules shall be approved by the ENGINEER.
      d. Training shall emphasize theory of operations, startup instructions, emergency and normal shutdown instructions, lockout procedures, troubleshooting, preventative maintenance, and alarm and control logic.
   7. The CONTRACTOR shall confirm each training period a minimum of three working days prior to the schedule time.
   8. If a manufacturer's representative fails to conduct a scheduled training class, the CONTRACTOR hereby agrees to compensate the OWNER for labor costs, including overhead, for all OWNER personnel in attendance for the entire scheduled training period.
   9. If the CONTRACTOR or the manufacturer's representative fails to provide training that qualifies the OWNER personnel to perform equipment task requirements, the

CONTRACTOR hereby agrees to provide remedial training to ensure OWNER personnel proficiency at no additional cost to the OWNER.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 RECORD KEEPING

A. The CONTRACTOR shall maintain as a minimum, the following records:
   1. Equipment manufacturer's shop drawings.
   2. Daily logs indicating all equipment testing and startup activities.
   3. Log and time sheets of all manufacturer's representatives performing services on the jobsite.
   4. Updated equipment testing and startup schedules.
   5. Records of system cleaning.
   6. Hydrostatic and pressure test records.
   7. Equipment alignment and vibration measurements and corrective actions.
   8. Equipment lubrication records.
   9. Insulation resistance measurements.
   10. Electrical phase, voltage and amperage measurements.
   11. Electrical breaker inspection, test, and adjustment records.
   12. Logs of abnormal circuits and lifted wires.
   13. Testing and validation of all central and alarm functions.
   14. Data sheets of all testing and calibration of instrumentation devices and control loops including documentation of set points.
   15. Equipment and system release logs (from construction to startup).
   16. Daily work reports.

3.2 GENERAL PROCEDURES

A. The general work procedures listed below outline the work to be performed by the CONTRACTOR. Additional procedures applicable to specific equipment items are specified elsewhere.

B. Technical assistance and support:
   1. Obtain the assistance of the appropriate construction trades and the manufacturer or vendor, as required for technical assistance during equipment installation, testing, and startup by the CONTRACTOR and for training of the OWNER's Operation and Maintenance personnel.
   2. Furnish names and telephone numbers of manufacturer's and vendor's current technical service representatives for use by the ENGINEER.

C. Instructions:
   1. Maintain an adequate manufacturer's instruction file so that the information will be readily available during equipment testing and startup.
   2. Prior to equipment testing, finalize, and transmit to the ENGINEER the applicable technical manuals as required under Section 01330, Submittal Procedures of the Contract Specifications.

D. Removal of rust preventives:

1. Prior to equipment testing, remove all rust preventives and oils used to protect the equipment during the construction period whenever these protective materials will be detrimental to operation or equipment maintenance.

E. Lubricants:
   1. At least 60 days prior to startup, provide a list of the manufacturer's recommended lubricants for use in the plant. All equipment lubrication shall be listed with the lubricant types and quantities recommended and approved by the equipment manufacturers.
   2. Provide the necessary lubricants for startup and the initial 60 days of operation.
   3. Flush systems and install the initial charge of all lubricants. Dispose of flushing oil in accordance with applicable regulations.
   4. The CONTRACTOR shall lubricate the equipment in accordance with the manufacturer's recommendations until the equipment is accepted by the OWNER.
   5. Maintain a lubrication record for each item of equipment. The CONTRACTOR shall submit the lubrication records to the ENGINEER prior to equipment testing.

F. Packing and seals:
   1. Install, adjust, and replace packing, mechanical seals, and accessories, as necessary, during the equipment testing and startup period.
   2. Adjust seal water and flushing water flow rates in accordance with the equipment manufacturer's recommendations.

G. Removal of temporary bracing:
   1. Prior to equipment testing, remove all temporary supports, bracing, or other foreign objects that were installed in vessels, transformers, rotating machinery, or other equipment to prevent damage during shipping, storage, and erection, and repair any damage sustained.

H. Rotation, alignment, and vibration:
   1. Prior to equipment testing, check rotating machinery for correct direction of rotation and for freedom of moving parts before connecting the driver.
   2. Prior to equipment testing, perform the cold alignment and hot alignment to the manufacturer's tolerances.
   3. Prior to equipment testing, test equipment vibration and correct any vibration in excess of the manufacturer's recommendation.

I. Tie-ins at the contract limits:
   1. Provide proper notification, preparation, and coordination for safe tie-ins and minimal interference with the plant operation.
   2. Obtain approval and make the necessary tie-ins at the unit limits as required by the Contract Documents and as approved by the ENGINEER.
   3. Prior to startup, remove the temporary blind flanges, plugs, bulkheads, seals, etc.

J. Leak and pressure tests:
   1. Provide the ENGINEER with 3-day advance notification in writing of the schedule for non-operating field leak tests or field pressure tests on piping and field fabricated equipment, unless otherwise directed by the ENGINEER.
   2. Provide the water, air and any special media required for the test purposes.
   3. Prior to startup, conduct all leak and pressure tests in accordance with applicable codes, regulations, and the Contract Documents, and as approved by the ENGINEER. The CONTRACTOR is advised that the tests shall be witnessed by the ENGINEER, to be considered valid.

4. Maintain a record of the leak and pressure test data and work completed.
5. Dispose of the test media in a manner that is acceptable to and approved by the OWNER and applicable regulatory agencies.
6. Isolate in-line equipment as necessary for protection against test pressure.

K. Pressure/vacuum safety relief devices:
1. Prior to equipment testing, test and adjust all safety devices as recommended by the equipment manufacturer.
2. Prior to plant startup, provide the ENGINEER with a list of all field or factory equipment settings.

L. Flushing and chemical/mechanical cleaning:
1. Prior to equipment operation, conduct all flushing, blowing, and chemical/mechanical cleaning operations without using the permanently installed equipment.
2. Provide any special media needed for flushing and/or cleaning purposes.
3. Dispose of all media in a manner that is acceptable to and approved by the OWNER and the applicable regulatory agencies.
4. All systems shall be free of trash and construction debris before initiating startup.
5. Maintain a record of the work completed.

M. Screens, strainers, and blind flanges:
1. Provide and install temporary strainers, screens, and blind flanges as necessary to protect the equipment and to test the equipment and pipelines.
2. Prior to startup, remove all of the temporary blinds and temporary appurtenances.
3. Clean the screens and strainers as required during startup.
4. At the end of startup, clean all of the permanently installed screens and strainers.

N. Purging/inerting:
1. Prior to startup, purge and/or passivate the facilities as specified.
2. Install purge/inerting connections in accordance with the manufacturer's recommendations.
3. Provide purge or inerting materials and conduct the necessary operations as recommended by the equipment manufacturer.

O. Drying out:
1. Prior to startup, dry out the facilities as specified or recommended by the equipment manufacturer to prevent contamination of catalysts, operating materials, and/or product.
2. Dry out systems, protective coatings, refractories, and linings as specified or recommended by the equipment manufacturers.

3.3 SPECIFIC PROCEDURES

A. In addition to the work responsibilities described in Subsection 3.2, the procedures outlined below further define the work responsibilities of the CONTRACTOR for specific systems and items of equipment.

B. Mechanical equipment:
1. Level baseplates and soleplates and grout under all load bearing surfaces.
2. Install suitable supports and flexible connections to alleviate any piping stresses that may be imposed on pumps, compressors, and drivers.

3. In accordance with the manufacturer's recommendations, chemically clean lube oil, seal oil, and cooling systems. Dispose of waste and cleaning media in a manner that is acceptable to and approved by the OWNER and applicable regulatory agencies.
4. In accordance with the manufacturer's recommendations, charge the lube oil, seal oil, and cooling systems with flushing media and circulate for cleaning purposes. Dispose of any flushing media in a manner that is acceptable to and approved by the OWNER and applicable regulatory agencies.
5. Charge the lube oil systems, seal oil systems, and cooling systems with the amount and type of operating oil or coolant recommended by the manufacturer.
6. Operate the equipment and check for excessive vibration, abnormal operating noises, overheating and lubricant leakage, etc., and test any safety shutdown/alarm devices for proper operation, and make any operating tests required by the ENGINEER. The adjustments required for proper operation shall be made prior to operational testing.
7. Utilize manufacturer's representative for technical assistance during installation and startup.
8. Prior to startup, all sidewalks, gratings, handrails, safety chains, safety shields, etc., shall be installed.
9. Prior to startup, demonstrate to the ENGINEER's satisfaction that all chemical solution pipelines are connected to the intended tank(s), feeder(s), pump(s), and application points, and that the pipes, appurtenances contained therein and diffusers will operate at the intended flow rates.
10. Prior to startup, the applicable safety equipment, emergency shower and eyewash units, fire extinguishers, fire suppression equipment, self-contained breathing apparatus, toxic and/or combustible gas detectors (including the respective personnel warning system), protective clothing, emergency repair kits, etc., shall be installed in an acceptable manner-subject to the ENGINEER's approval, and be fully ready for operation.
11. All safety hazards, e.g., exposed drive shafts or rotating equipment members, exposed electrical circuitry, open electrical junction boxes and panels, improperly supported piping and conduits, missing safety devices, etc., shall be corrected prior to supplier training of the OWNER's personnel.
12. The CONTRACTOR shall perform a comprehensive safety inspection and correct any safety deficiencies found before implementing plant startup.
13. Roadways that are required for ambulance service, fire fighting access, delivery of treatment chemicals and supplies, and disposal of the treatment byproducts shall be completed prior to startup.
14. Prior to startup, install all warning and safety signs, labels, and devices.

C. Tanks:
1. Test all tanks and internals, as required to demonstrate conformance to the Contract Documents. Dispose of test media in a manner that is acceptable to and approved by the OWNER and the applicable regulatory agencies.
2. Prior to startup, conduct chemical cleaning or flushing operations as specified. Dispose of wastes and cleaning media in a manner that is acceptable to and approved by the OWNER and the applicable regulatory agencies.
3. Prior to startup, install all chemical identification, warning, and safety signs and labels.

D. Electrical power and lighting systems:
1. Provide the ENGINEER with 3-day advance notification in writing of the test schedule. The CONTRACTOR is advised that the tests shall be witnessed by the ENGINEER.
2. Perform insulation resistance tests on all wiring 120 volt and larger. Do not meggar instruments or solid-state devices.

3. Perform insulation resistance tests on all motor and transformer windings from phase to phase and phase to ground.
4. Perform grounding system tests to determine the continuity of connections and the value of resistance to ground.
5. Fill electrical gear with oil and/or other media as recommended by the equipment manufacturer.
6. Prior to substantial completion and startup, test and set switchgear and circuit breaker relays for proper coordination and operation.
7. The CONTRACTOR shall obtain the services of a qualified "independent testing service", member of the National Electric Testing Association, to perform a thermographic survey on all switchgear buses, insulators and power connections when energized and under at least 20 percent load. Significant hot spots shall be further checked by infrared pyrometer for exact temperature rise. The CONTRACTOR shall troubleshoot and correct the thermographic hot spots. Correction shall be verified by repeating the thermographic survey at no additional cost to the OWNER.
8. The CONTRACTOR shall obtain the services of a qualified "independent testing service", member of the National Electric Testing Association, to inspect and test the protective relays and the 800-ampere and larger drawout breakers for proper installation, adjustment, and operation in accordance with the manufacturer recommendations.
9. The CONTRACTOR shall obtain the services of a qualified "independent testing service", member of the National Electrical Testing Association, to perform DC high potential tests on all cables that will operate at more than 2,000 volts to ground.
10. Obtain local electrical inspector's approval where required.
11. Energize all substations, with approval of the Utility Company and the ENGINEER after completion of all electrical testing.
12. Prior to startup, perform tests and adjustments on all switchgear and motor control equipment to demonstrate proper operation and conformance to the Contract Documents and manufacturer's recommended settings.
13. Prior to startup, test installation of emergency power and lighting systems for proper operation, including light intensity.
14. Prior to startup, provide the ENGINEER with a record of all test data and the work completed.
15. Vacuum clean all electrical equipment prior to startup and acceptance.

E. Piping systems:
1. Provide the ENGINEER with 3-day advance notification in writing of test schedule.
2. Hydrostatically or pneumatically test all piping as required by the codes and contract documents.
3. After successful testing of the piping, slowly drain the system and then flush the system. Orifice plates shall be installed after testing. If installed with the piping, they will be removed and replaced with spacers or pipe spools of equal length prior to the pressure test.
4. Dewater the system, remove blind flanges, and perform tightness tests, as required by the ENGINEER.
5. Insulate or paint piping, flanges, threaded joints, or field welds after the specified testing of each item has been completed unless instructed otherwise by the ENGINEER.
6. Leave exposed all welded joints (longitudinal, girth, and nozzle) in underground piping that have not been shop tested until the specified testing has been completed. After final testing of these joints, cover the system.
7. Prior to substantial completion and startup, check pipe hangers, supports, guides, and pipe specialties for the removal of all shipping and erection stops and for the

correctness of the cold and hot settings for the design service, make adjustments as necessary to obtain proper installation. Provide the ENGINEER with instructions for the hot settings.

8. As necessary during equipment testing and at the end of substantial completion and startup, clean or replace the screens and filter elements as appropriate for the filter type and service.
9. Prior to startup, verify, to the extent required by the ENGINEER, that specified valve packing has been provided on valves installed in the plant.
10. Prior to startup, install all of the valve and piping system identification labels.
11. Prior to startup, check and record the position of all process system valves.
12. Prior to startup, correct support, vibration, and thermal expansion problems detected during the preliminary equipment testing.
13. Prior to the startup, retorque all hot and cold service bolting as required to ensure a permanent and proper installation.
14. Prior to startup, demonstrate to the ENGINEER's satisfaction that each piping system (e.g., chemical, sample, utility, irrigation process, etc.) functions as designed and required by the Contract Documents.

+ + END OF SECTION + +

SECTION 01800

OPERATIONAL COMPLETION AND PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 GENERAL

A. The Work will be considered operationally complete when all technical and administrative submittals, testing, training and startup are completed satisfactorily in accordance with the Contract Documents.

B. Operational completion shall apply to the project in its entirety.

1.2 CERTIFICATION OF OPERATIONAL COMPLETION

A. Prior to requesting the ENGINEER's inspection for certification of each phase as operationally complete, the CONTRACTOR shall certify in writing that each phase of the work is operationally complete and shall submit a list of known items still to be completed or corrected (punchlist) prior to contract completion.

B. The following items shall be completed:
   1. OWNER has been advised of any pending insurance changeover requirements.
   2. Specific warranties, maintenance agreements, final certifications and similar documents have been submitted.
   3. All tools, spare parts, extra stocks of materials, and similar physical items have been delivered to OWNER.
   4. Instruction of OWNER's operation/maintenance personnel, and start up testing has been completed.
   5. Submittal and acceptance of all O&M manuals.
   6. Changeover of locks to OWNER's cores/keys.

C. Punchlist:
   1. When the CONTRACTOR considers that the Work, or a portion or phase thereof which the OWNER agrees to accept separately, is operationally complete, the CONTRACTOR shall certify in writing that the work is operationally complete and shall prepare and submit to the ENGINEER a comprehensive list of items to be completed or corrected prior to contract completion (punchlist).
   2. The ENGINEER may add additional work items to the punchlist.
   3. Failure to include an item on the punchlist does not alter the responsibility of the CONTRACTOR to complete all Work in accordance with the Contract Documents.
   4. Upon receipt of the CONTRACTOR's punchlist, the ENGINEER will make an inspection to determine whether the Work or designated portion thereof is operationally complete.
   5. If the ENGINEER's inspection discloses any item, whether or not included on the CONTRACTOR's list, that is not in accordance with the requirements of the Contract Documents, the CONTRACTOR shall, upon notification by the ENGINEER and before an issuance of the Certificate of Operational Completion is provided, complete or correct such item.
   6. The CONTRACTOR shall then submit a request for another inspection by the ENGINEER.

7. When the Work or designated portion thereof is accepted by the ENGINEER to be operationally complete, the ENGINEER will prepare a Certificate of Operational Completion.
8. The date of Operational Completion shall be the date of the ENGINEER's inspection and acceptance.

1.3 DESCRIPTION OF PROJECT CLOSEOUT

A. Closeout is hereby defined to include general requirements near the end of the Contract Time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by OWNER and similar actions evidencing completion of the work.

B. Specific requirements for individual units of work are specified in Sections of Divisions 2 through 16.

1.4 FINAL CLEANUP

A. At completion, leave project clean and ready for use.
   1. Legally dispose of waste materials, debris and rubbish off the site.
   2. Remove grease, dust, dirt, stains, labels, fingerprints and other foreign materials from exposed and enclosed surfaces.
   3. Repair, patch and touch up all affected curbs, gutters, and sidewalks to match adjacent surfaces.
   4. Broom clean paved surfaces, rake clean other surfaces of grounds. Vacuum clean all interior surfaces, rake clean other surfaces of grounds.

1.5 RECORD DRAWINGS

A. The CONTRACTOR shall prepare and submit contract Record Drawings for the OWNER.
   1. The CONTRACTOR shall make a record of changes during construction on prints of the Drawings provided by the OWNER for this purpose (Contract Record Drawings) as described in Section 01330, Submittal Procedures.
   2. The reproducible drawings on which changed conditions are recorded shall be returned to the ENGINEER prior to project completion.

1.6 GUARANTEES

A. The "General Conditions" cover the CONTRACTOR's responsibility to remedy defects due to faulty workmanship and materials which appear within one year from the date of final acceptance.

B. Special guarantees are required by various Sections of the Specifications. Assemble written guarantees, label and submit to the ENGINEER.
   1. Provide the "Warranty Form" included in the General Conditions.
   2. Equipment guarantees shall be written in the manufacturer's standard form and shall be countersigned by the Subcontractor or supplier and the CONTRACTOR.
   3. All other guarantees shall be written on the Subcontractor's or supplier's letterhead and shall be countersigned by the CONTRACTOR.

1.7 SPARE PARTS AND MAINTENANCE MATERIALS

A. Spare parts and maintenance materials are required by various Sections of the Specifications.

1. Parts and materials shall be packaged so as to preclude damage in normal handling and storage.
2. Packages shall be labeled with full description of contents and project name and clearly identified as to which item of equipment they belong to. CONTRACTOR shall maintain a spare parts inventory list which shall be provided to the OWNER prior to final acceptance.
3. Submit packaged parts and materials to ENGINEER.
4. Submit the value of all spare parts.

1.8 FINAL INSPECTION

A. Prior to requesting ENGINEER's final inspection for certification of final acceptance and final payment, complete the following and list known exceptions (if any):
   1. Submit final payment request with final releases and supporting documentation not previously submitted and accepted.
   2. Submit copy of final punchlist of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by ENGINEER.
   3. Submit Consent of Surety.
   4. Revise and submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Certify in writing that the work has been completed in accordance with the Contract Documents, and request ENGINEER's final inspection.

C. Reinspection:
   1. Within seven (7) days after receipt of the CONTRACTOR's notice that the work has been completed, including punchlist items resulting from earlier inspections, and excepting incomplete items delayed because of acceptable circumstance, the ENGINEER will reinspect the work.
   2. Upon completion of reinspection, ENGINEER will either prepare a certificate of final acceptance or advise the CONTRACTOR of work not complete or obligations not fulfilled as required for final acceptance.
   3. If necessary, inspection procedure will be repeated.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

+ + END OF SECTION + +

SECTION 01810

CLEANING

PART 1 - GENERAL

1.1 WORK INCLUDED

A. This Section covers the work necessary for cleaning during construction and final cleaning on completion of the Work.

1.2 GENERAL

A. At all times maintain areas covered by the Contract and public properties free from accumulations of waste, debris, and rubbish caused by construction operations.

B. Pollution Control:
   1. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
   2. Do not burn or bury rubbish and waste materials on project site.
   3. Volatile wastes shall be properly stored in covered metal containers and removed daily.
   4. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
   5. Do not dispose of wastes into streams or waterways.

C. Construction materials such as concrete forms and scaffolding shall be neatly stacked by the CONTRACTOR when not in use. The CONTRACTOR shall promptly remove splattered concrete, asphalt, oil, paint, corrosive liquids, and cleaning solutions from surfaces to prevent marring or other damage.

D. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

E. Use cleaning materials only on surfaces recommended by cleaning material manufacturers.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 CLEANING DURING CONSTRUCTION

A. During execution of Work, clean site and public properties and dispose of waste materials, debris, and rubbish to assure that buildings, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.

B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.

C. Provide approved containers for collection and disposal of waste materials, debris, and rubbish. Empty containers within one day after they are full.

D. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from exposed and semi-exposed surfaces.

E. Repair, patch, and touch up marred surfaces to specified finish to match adjacent surfaces.

F. Vacuum clean all interior spaces, including inside cabinets. Broom clean paved surfaces, rake clean other surfaces of grounds.

G. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.

H. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.

I. Vacuum clean interior building areas when ready to receive finish painting and continue vacuum cleaning on an as-needed basis until building is ready for substantial completion or occupancy.

3.2 FINAL CLEANING

A. Refer to the requirements of the General Conditions, Section 32 in addition to the requirements of this Section.

B. See Section 01800, Operational Completion and Project Closeout, for additional requirements.

C. At the completion of Work on all Contracts and immediately prior to final inspection, cleaning of the entire Project will be accomplished according to the following provisions:
   1. The CONTRACTOR shall thoroughly clean, sweep, wash, and polish all work and equipment, including finishes. The cleaning shall leave the structures and site in a complete and finished condition to the satisfaction of the ENGINEER.
   2. Should the CONTRACTOR not remove rubbish or debris or not clean the building and site as specified above, the OWNER reserves the right to have the cleaning done at the expense of the CONTRACTOR.
   3. Employ professional cleaners for final cleaning.
   4. In preparation for substantial completion of occupancy, conduct final inspection of sight-exposed interior and exterior surfaces, and of concealed spaces.
   5. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior finished surfaces; polish surfaces so designated to shine finish.
   6. Repair, patch, and touch up marred surfaces to specified finish, to match adjacent surfaces.
   7. Broom clean paved surfaces; rake clean other surfaces of grounds.
   8. Replace air-handling filters if units were operated during construction.
   9. Clean ducts, blowers, and coils, if air-handling units were operated without filters during construction.
   10. Clean luminaires in accordance with manufacturer's recommendations. Clean all light fixtures.
   11. Remove from the OWNER's property all temporary structures and all materials, equipment, and appurtenances not required as a part of, or appurtenant to, the completed work. See Section 01500 - Temporary Construction Facilities and Utilities.

+ + END OF SECTION + +

DIVISION 2

SECTION 02200

SITE PREPARATION

PART 1 - DEFINITIONS

1.1 DEFINITIONS

A. Interfering or Objectionable Material: Trash, rubbish, and junk; vegetation and other organic matter, whether alive, dead, or decaying; topsoil.

B. Clearing: Removal of interfering or objectionable material lying on or protruding above ground surface.

C. Grubbing: Removal of vegetation and other organic matter including stumps, buried logs, and roots greater than 0.5 inch caliper to a depth of 6 inches below subgrade.

D. Stripping: Removal of topsoil remaining after applicable scalping is completed.

E. Project Limits: Areas, as shown or specified, within which Work is to be performed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 GENERAL

A. Clear, grub, and strip areas actually needed for waste disposal, borrow, or site improvements within limits shown or specified.

B. Do not injure or deface vegetation that is not designated for removal.

3.2 LIMITS

A. As follows, but not to extend beyond Project limits.
   1. Excavation 5 feet beyond top of cut slopes.
   2. Trench Excavation: 4 feet from trench centerline, regardless of actual trench width.
   3. Waste Disposal:
      a. Clearing: 5 feet beyond perimeter.
      b. Scalping and Stripping: Not required.
      c. Grubbing: Around perimeter as necessary for neat finished appearance.
   4. Structures: 5 feet outside of new structures.
   5. Roadways: Clearing , grubbing and stripping 50 feet from centerline.
   6. Overhead Utilities:
      a. Clearing and Grubbing: Entire width of easements and rights-of-way.
      b. Scalping and Stripping: Wherever grading is required.
   7. Other Areas: As shown.

B. Remove rubbish, trash, and junk from entire area within Project limits.

3.3 CLEARING

A. Clear areas within limits shown or specified.

B. Fell trees so that they fall away from facilities and vegetation not designated for removal.

C. Cut stumps not designated for grubbing flush with ground surface.

D. Cut off shrubs, brush, weeds, and grasses to within 2 inches of ground surface.

3.4 GRUBBING

A. Grub areas within limits shown or specified.

3.5 STRIPPING

A. Do not remove topsoil until after scalping is completed.

B. Strip areas within limits to minimum depths shown or specified. Do not remove subsoil with topsoil.

3.6 DISPOSAL

A. Clearing and Grubbing Debris: Dispose of debris offsite.

B. Strippings:
   1. Dispose of strippings that are unsuitable for topsoil or that exceed quantity required for topsoil offsite or approved by ENGINEER.
   2. Stockpile topsoil in sufficient quantity to meet Project needs. Dispose of excess strippings as specified for clearing and grubbing.

+ + END OF SECTION + +

SECTION 02220

DEMOLITION

PART 1 - GENERAL

1.1 DEFINITIONS

A. "Demolish": CONTRACTOR shall remove from the site as property of CONTRACTOR. Demolition includes disconnecting, removal, loading, repairs, cleanup, transportation, unloading, disposal permits and fees, disposal, and all other items required to remove the material from the site.

B. "Salvage": CONTRACTOR shall remove from area of Work and place in location designated by ENGINEER. Equipment is property of OWNER. Salvage includes disconnecting, removal, repairs, cleanup, loading, transportation, unloading, and all other items required to remove and relocate the material.

C. "OWNER to Remove": OWNER will remove from area of Work prior to CONTRACTOR commencing demolition Work for this area.

D. "Relocate": CONTRACTOR shall relocate material shown to new locations shown on Drawings or stated herein. Relocation includes disconnecting, removal, reconnecting, attaching, repairs, and all other items required to relocate material to new location.

E. "Abandon": CONTRACTOR shall disconnect and leave in place as specified.

F. "Materials": Any and all items and objects that are scheduled, specified, or shown to be demolished, salvaged, removed, relocated, or abandoned.

1.2 SUBMITTALS

A. Action Submittals:
   1. Product Information: Grout, sealants, and bonding agents to be used for patching.

B. Informational Submittals:
   1. Plan and schedule phased demolition, including limits of demolition, as part of and consistent with the progress schedule specified in Section 01320, PROGRESS SCHEDULE.
   2. Methods of demolition and equipment proposed to demolish materials.
   3. Copies of any authorizations and permits required to perform Work.
   4. Copies of Hazardous Materials Inspection Reports.
   5. Repair procedures for demolition of materials beyond limits shown on Drawings.

PART 2 - PRODUCTS

2.1 GENERAL

A. CONTRACTOR shall provide all materials and equipment in suitable and adequate quantity as required to accomplish the Work shown, specified herein, and as required to complete the Project.

PART 3 - EXECUTION

3.1 GENERAL

A. Drawings are based on available information. The Work may differ slightly from what is shown. CONTRACTOR shall be responsible for determining the work required by inspecting the site.

3.2 SAFETY REQUIREMENTS

A. All Work shall be done in conformance with all applicable rules and regulations pertaining to safety.

B. Hazardous Materials:
   1. See General Conditions.
   2. Existing facilities, or portions thereof, to be demolished may contain hazardous materials such as asbestos cement piping, residual chemicals in existing or abandoned piping, lead-based paint, mercury seals, or other unknown hazardous materials.

3.3 SEQUENCE

A. Be responsible for the sequence of Work.

B. Conform to constraints as specified in Section 01130, SPECIAL PROJECT CONSTRAINTS.

3.4 COORDINATION

A. Coordination with ENGINEER:
   1. Only materials specified herein, shown on the Demolition Photographs or the Drawings, or approved by ENGINEER in the field shall be demolished, salvaged, removed, relocated, or abandoned.
   2. Verify materials scheduled to be demolished, salvaged, removed, relocated, or abandoned with ENGINEER prior to performing Work.
   3. Do not remove materials without prior approval of ENGINEER.
   4. Provide at least 3 working days' notice to ENGINEER prior to start of Work.
   5. Notify ENGINEER to turn off affected services or facilities before starting Work.
   6. Provide temporary services during interruptions to affected services or facilities as acceptable to ENGINEER.
   7. ENGINEER will indicate limits of Work if not clearly shown.

B. Coordination with Utility Owners:
   1. Notify utility owners to turn off affected services or facilities before starting Work.
   2. Provide not less than 72 hours notice to utility owners prior to shutdown, unless otherwise directed by utility owners.
   3. Provide temporary services during interruptions to affected services or facilities as acceptable to utility owners.

3.5 LIMITS

A. Drawings define minimum portions of materials to be demolished. Unless otherwise shown, rough cuts or breaks may be made to limits of demolition shown. If rough cuts or breaks are made exceeding limits shown, CONTRACTOR shall repair the cuts or breaks back to the dimensions shown on Drawings at CONTRACTOR's expense.

B. If limits are not clear on the Drawings or Demolition Photographs, limits shall be as directed by ENGINEER.

C. All areas not within the limits of demolition Work shown on the Drawings, or as specified herein, shall be left undisturbed, unless necessary for demolition of materials.

3.6 DEMOLITION

A. General:
   1. Inspect condition of materials to be demolished prior to bidding to assess potential for salvage value.
   2. Remove all materials associated with existing equipment that is to be demolished.
   3. Materials within limits of demolition will become the property of CONTRACTOR.
   4. All materials from the demolition process shall be removed safely from the project site as soon as possible. They shall be disposed of in accordance with applicable federal, state, and city regulations. CONTRACTOR is responsible for determining these regulations and shall bear all costs associated with disposal of the materials.

B. Pavement and Curbs:
   1. Provide saw cut at all concrete and pavement surfaces and curb removal limits and where neat connection lines are required.
   2. Surfaces exposed by demolition activities shall be repaired and finished to provide a uniform, smooth, level transition between adjacent surfaces.

C. Concrete, CMU, and Reinforcing:
   1. In areas where concrete or CMU portions are to be removed from a structure, the edge of removal shall be cut with a concrete saw to leave a perpendicular edge or by core-drilling where a circular hole is required.
   2. Damaged concrete shall be removed to solid concrete. Damaged concrete shall include concrete that is soft, spalled, cracked, or otherwise damaged as determined by ENGINEER.
   3. Depth of removal shall be as determined by ENGINEER unless otherwise shown or specified.
   4. Reinforcing shall be cut and removed unless otherwise shown or instructed by ENGINEER.
   5. Spalled edges may be required to be resawn at the discretion of the ENGINEER.
   6. Protect adjacent structures and equipment from damage during Work.
   7. Exposed surfaces following demolition activities shall be repaired and finished to provide a uniform, smooth, and level transition between adjacent surfaces.

8. Remove and repair designated cracked and damaged concrete areas shown in accordance with this section and Section 03300, CAST-IN-PLACE CONCRETE.

D. Concrete Embedded Items:
   1. Except for core drills, demolish anchor bolts, reinforcing steel, conduit, and other materials that are concrete embedded to a minimum of 1 inch below final finished surface. For core drills, coat rebar exposed by core drilling with System No. 304 in accordance with Section 09900, PAINTING.
   2. Plug empty pipes and conduits with fireproof sealant to maintain fire ratings for floors or walls.
   3. Patching:
      a. Demolish damaged concrete. Damaged concrete shall be removed to solid concrete. Damaged concrete shall include concrete that is soft, spalled, cracked, or otherwise damaged as determined by ENGINEER.
      b. Coat with approved bonding agent.
      c. Patch with nonshrink, nonmetallic grout.

E. Piping:
   1. Pressurized Services: Install restrained caps or plugs at the demolished ends, unless otherwise shown.
   2. Gravity Services: Install concrete plugs, 5-foot minimum length.

F. Utilities:
   1. Excavate utility lines serving structures to be demolished.
   2. Demolish electrical, sanitary, and storm drainage lines serving structures to be demolished.
   3. Support or relocate utility lines exposed by Work.
   4. For water and gas lines to be demolished or capped and terminated, provide a permanent leakproof closure. Closure type shall be as recommended by utility owner.

G. Electrical:
   1. Remove conduits and wiring from materials to be demolished back to nearest junction box.
   2. For existing circuits to remain operational, intercept existing conduit at the most convenient location, or as shown, and splice and extend conduit to new location. Install new conductors as required to accomplish intended results. New conductors shall be continuous without splices between junction boxes.
   3. For existing circuits no longer needed, demolish conductors from conduits.
   4. Demolish all surface-mounted conduit which is no longer needed.
   5. For conduit below grade or concealed within walls, cap and abandon in place.

3.7 SALVAGE

A. Salvage materials for OWNER's own use where shown.

B. Remove materials with extreme care so as not to damage.

C. Promptly remove materials from Work area.

D. Store materials in location designated by ENGINEER.

E. Clean and protect materials from dust, dirt, natural elements, and store as directed.

3.8 RELOCATION

A. ENGINEER will determine condition of materials prior to removal.

B. Remove all materials associated with items to be relocated.

C. Existing materials shall not be damaged during removal.

D. Properly store and maintain materials in same condition as when removed.

E. Clean and protect materials from dust, dirt, natural elements, and store as directed.

3.9 ABANDONEMENT

A. Structures: Break holes into or core drill floor slabs, catch basins, and other below-grade concrete structures to be abandoned in place to allow water to freely migrate through.

B. Piping and Conduits:
   1. General: Piping and conduits to be abandoned shall be capped with a watertight plug at demolished end in a manner that will prevent entrance of soil, groundwater, or moisture.
   2. Pressurized Services: Install restrained caps or plugs at the demolished ends, unless otherwise shown.
   3. Gravity Services: Install concrete plugs, 5-foot minimum length.

3.10 REPAIR AND REPLACEMENT

A. Any damaged materials scheduled to be salvaged or relocated shall be repaired by the CONTRACTOR to the satisfaction of ENGINEER or replaced at the CONTRACTOR's expense.

B. Any damage to areas not within the limits of demolition Work shown on the Demolition Photographs, Drawings, or as specified herein shall be repaired or replaced to original precontract conditions at the CONTRACTOR's sole expense.

3.11 DISPOSAL

A. Dispose of materials offsite in licensed landfills and in accordance with all local, state, and federal regulations. CONTRACTOR is responsible for obtaining any and all necessary permits for disposal.

+ + END OF SECTION + +

DIVISION 3

SECTION 03100

CONCRETE FORMWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes: Falsework and formwork, as required to construct cast-in-place concrete, including placing of all items such as sleeves, anchor bolts, inserts and all other items to be embedded in concrete for which placement is not specifically provided under other Sections.

B. REFERENCES

C. American Concrete Institute (ACI)
   1. ACI 301, Specifications for Structural Concrete for Buildings.
   2. ACI 347, Guide for Concrete Formwork.

1.2 SYSTEM DESCRIPTION

A. Coordination:
   1. Review installation procedures under other Sections and coordinate the installation of items that must be installed with the formwork.
   2. Coordinate formwork specifications herein with the requirements for finished surfaces specified in Section 03300, Cast-In-Place Concrete.

1.3 SUBMITTALS

A. Shop Drawings: Submit for information purposes the following: Copies of manufacturer's data and installation instructions for all proprietary materials, including form coatings, manufactured form systems, ties and accessories.

1.4 QUALITY ASSURANCE

A. Allowable Tolerances: Construct formwork to provide completed concrete surfaces complying with tolerances specified in ACI 347, Chapter 3.3, except as otherwise specified.

B. Furnish and install all items for permanent or temporary facilities in accordance with manufacturer’s instructions.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

A. Forms for Exposed Finish Concrete: Unless otherwise shown or specified, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood-faced or other acceptable panel materials, to provide continuous, straight, smooth as-cast surfaces. Furnish in largest practical sizes to minimize number of joints.

Provide form material with sufficient thickness to remain watertight and withstand pressure of newly placed concrete without bow or deflection.

B. Forms for Unexposed Finish Concrete: Form concrete surfaces that will be unexposed in the finished structure with plywood, lumber, metal, or other acceptable material. Provide lumber that is dressed on at least 2 edges and 1 side.

C. Form Ties:
   1. Form ties on exposed surfaces shall be located in a uniform pattern or as indicated on the Drawings. Form ties shall be constructed so that the tie remains embedded in the wall, except for a removable portion at each end. Form ties shall have conical or spherical type inserts, inserts shall be fixed so that they remain in contact with forming material, and shall be constructed so that no metal is within 1 inch of the concrete surface when the forms, inserts, and tie ends are removed. Wire ties will not be permitted. Ties shall withstand all pressures and limit deflection of forms to acceptable limits.
   2. Flat bar ties for panel forms shall have plastic or rubber inserts having a minimum depth of 1 inch and sufficient dimensions to permit proper patching of the tie hole.
   3. Ties for water-holding structures or dry structures with access such as basements, pipe galleries, etc., that are below finish grade, shall have either an integral steel water stop 0.103 inch thick and 0.625 inch in diameter that is tightly and continuously welded to the tie, or a neoprene water stop 3/16-inch thick and 15/16 inch in diameter whose center hole is ½ the diameter of the snap tie, or a molded plastic water stop of comparable size. Flat snap ties complying with above requirements and other sections of this Specification may be used. The water stop shall be considerably larger in area than the tie cross sectional area, and shall be oriented perpendicular to the tie and symmetrical about the center of the tie. The ties shall be constructed to provide a positive means of preventing rotation or disturbance of the center portion of the tie during removal of the ends.

D. Alternative Form Ties – Through-Bolts:
   1. Alternate form ties consisting of tapered through-bolts at least 1 inch in diameter at smallest end, or through-bolts that utilize a removable tapered sleeve of the same minimum size may be used at the CONTRACTOR's option. Clean and roughen, fill, and seal form tie hole as shown on the Drawings; or where not shown on the Drawings, the CONTRACTOR shall provide a shop drawing submittal of his proposed method of sealing the through-bolt hole by sandblasting or mechanically cleaning and roughening the entire interior surface of the hole, epoxy coating the roughened surface and driving a vinyl plug and then dry packing the entire hole on each side of the plug with nonshrink grout, meeting these Specifications. Dry packing shall be done while the epoxy is tacky or remove the epoxy by mechanical means and reapply new epoxy. The CONTRACTOR shall be responsible for watertightness and any repair needed. Any leaks or dampness on the exterior of through-bolt patches during or after water testing shall require repair or replacement of the patch.
   2. The elastic plug to be inserted into the form tie hole as shown on the Drawings shall be a Dayton Sure Plug, or approved equal, sized to allow insertion using the insertion tool to elongate the plug, place it at the correct location, and allow the plug to return to its original length and diameter upon removal to form a watertight seal. The plugs shall be as manufactured and supplied by Dayton Superior, Dayton OH, phone: 888/977-9500.

E. Forms Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain, nor adversely affect concrete surfaces, and will not impair subsequent

treatment of concrete surfaces requiring bond or adhesion, nor impede the wetting of surfaces to be cured with water or curing compounds.

2.2 DESIGN OF FORMWORK

A. The CONTRACTOR shall design all formwork prior to fabrication. The design shall account for all the tolerances, form ties, finishes, architectural features, rebar supports, construction joint locations, and other features and other nonstructural formwork requirements specified. Forms shall contain pouring and observation windows to allow placement of concrete through windows or shall be staged to allow visual observation at all times of the fresh concrete to ensure correct placement and vibration. Provide a formwork and placement design that will limit free fall of concrete in forms 8-inch or less in width to 5 feet; and for forms wider than 8 inches, limit this fall to 8 feet, except as hereinafter specified. Review methods with ENGINEER prior to start of work. Use placement devices, such as chutes, pouring spouts, pumps, as required.

B. Reuse of forms will be permitted only if a "like new" condition, unless otherwise approved in writing, is maintained. The ENGINEER shall be notified 1 full working day prior to concrete placement so that the forms can be inspected. The CONTRACTOR shall correct any defective work, found in the ENGINEER's inspection, prior to delivery of concrete to the project. Formwork surfaces that were in good condition and accepted for use, but were damaged during removal and handling shall not be reused on additional pours. The CONTRACTOR is expected to take care in the handling of forms and to obtain approval of form surfaces prior to each reuse.

C. All forms, falsework, shoring, and other structural formwork required shall be structurally designed by the CONTRACTOR and the design shall comply with all applicable safety regulations, current OSHA regulations, and other codes. Where federal or state agencies require a licensed engineer to prepare and/or seal all formwork, falsework or shoring designs, the CONTRACTOR shall hire this engineer and pay all costs. The designs shall be made available to any governing agency upon request. Comply with applicable portions of ACI 347, ACI 318 current edition, and theses Specifications. All design, supervision, and construction for safety of property and personnel shall be the CONTRACTOR's full responsibility.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine the substrate and the conditions under which Work is to be performed with installer and notify ENGINEER, in writing, of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.

3.2 FORM CONSTRUCTION

A. Construct forms complying with ACI 347; to the exact sizes, shapes, lines and dimensions shown; as required to obtain accurate alignment, location and grades; to tolerances specified; and to obtain level and plumb work in finish structures. Provide for openings, offsets, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required. Use selected

materials to obtain required finishes. Finish shall be as determined by approved mock-up or sample panel, if specified.

B. Fabricate forms for easy removal without damaging concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where the slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and assure ease of removal.

C. Provide temporary form windows where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Brace temporary closures and set tightly to forms to prevent loss of concrete mortar. Locate form windows on forms in locations as inconspicuous as possible, consistent with requirements of the Work. Form intersecting planes of openings to provide true, clean-cut corners, with edge grain of plywood not exposed as form for concrete.

D. Falsework:
   1. Erect falsework and support, brace and maintain it to safely support vertical, lateral and asymmetrical loads applied until such loads can be supported by in-place concrete structures. Construct falsework so that adjustments can be made for take-up and settlement.
   2. Provide wedges, jacks or camber strips to facilitate vertical adjustments. Carefully inspect falsework and formwork during and after concrete placement operations to determine abnormal deflection or signs of failure; make necessary adjustments to produce finished Work of required dimensions.

E. Forms for Exposed To View Concrete:
   1. Do not use metal cover plates for patching holes or defects in forms.
   2. Provide sharp, clean corners at intersecting planes, without visible edges or offsets. Back joints with extra studs or girts to maintain true, square intersections.
   3. Use extra studs, walers and bracing to prevent bowing of forms between studs and to avoid bowed appearance in concrete. Do not use narrow strips of form material that will produce bow.
   4. Assemble forms so they may be readily removed without damage to exposed concrete surfaces.
   5. Form molding shapes, recesses, rustication joints and projections with smooth-finish materials, and install in forms with sealed joints to prevent displacement.

F. Corner Treatment:
   1. Form exposed corners of beams, walls, foundations, bases and columns to produce smooth, solid, unbroken lines, except as otherwise shown. Except as specified below for reentrant or internal corners, exposed corners shall be chamfered.
   2. Form chamfers with 3/4”x 3/4” strips, unless otherwise shown, accurately formed and surfaced to produce uniformly straight lines and tight edge joints. Use rigid PVC chamfers for all architecturally formed concrete. Extend terminal edges to require limit and miter chamfer strips at changes in direction.
   3. Reentrant or internal corners and unexposed corners shall be formed chamfered.

G. Openings and Built-In Work:
   1. Provide openings in concrete formwork shown or required by other Sections or other contracts.
   2. Accurately place and securely support items to be built into forms.

H. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is to be placed. Retighten forms immediately after concrete placement as required to eliminate mortar leaks.

3.3 FORM COATINGS

A. Coat form contact surfaces with a non-staining form-coating compound before reinforcement is placed. Do not allow excess form coating material to accumulate in the forms or to come into contact with surfaces that will be bonded to fresh concrete. Apply in compliance with manufacturer's instructions.

B. Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.

3.4 INSTALLATION OF EMBEDDED ITEMS

A. Set and build into the formwork, anchorage devices and other embedded items, shown, specified or required by other Sections and other contracts. Use necessary setting drawings, diagrams, instructions and directions.

B. Edge Forms and Screeds Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in the finished slab surface. Provide and secure units to support screeds.

3.5 FIELD QUALITY CONTROL

A. Before concrete placement, check the formwork, including tolerances, lines, ties, tie cones, and form coatings. Make corrections and adjustments to ensure proper size and location of concrete members and stability of forming systems.

B. During concrete placement check formwork and related supports to ensure that forms are not displaced and that completed Work is within specified tolerances.

C. If forms are unsatisfactory in any way, either before or during placing of concrete, postpone or stop placement of concrete until the defects have been corrected, and reviewed by ENGINEER.

3.6 REMOVAL OF FORMS

A. Conform to the requirements of ACI 301, Chapter 2 and ACI 347, Chapter 3.7 except as specified below.
   1. Removal of Forms and Supports: Continue curing in accordance with Section 03300, Cast-In-Place Concrete, Paragraph 3.7. Forms are to remain in-place for the time specified below. The temperature cited is the average of the daily high and low.

Temperature:	Over 95°F	70°F-95°F	60°F-70°F	50°F-60°F	Below 50°F
Walls	1 day	1 day	2 days	3 days	Do not remove forms until site-cured test cylinder develops 65% of 28 day strength.
Columns	2 days	2 days	3 days	4 days	
Beams	7 days	4 days	5 days	6 days	
Slabs ≤ 5" thick	7 days	5 days	6 days	7 days	
Slabs >5" thick	7 days	6 days	7 days	7 days	

2. When high-early strength concrete is specified, a schedule for removal of forms will be developed in the field from the age/ strength relationships established for the materials and proportions used by tests in accordance with ACI 301, Section 2.3.4.

B. Leave form-facing material in place a minimum of 4 days after concrete placement, unless otherwise approved by ENGINEER.

3.7 PERMANENT SHORES

A. Provide permanent shores as defined in ACI 347 Chapter 3.7. Reshores will not be permitted.

3.8 RE-USE OF FORMS

A. Clean and repair surfaces of forms to be re-used in the Work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable. Apply new form coating compound material to concrete contact surfaces as specified for new formwork.

B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close all joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces. Form surfaces shall be subject to ENGINEER'S approval.

+ + END OF SECTION + +

SECTION 03200

CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes: Fabrication and placement of reinforcement including bars, ties and supports, and welded wire fabric for concrete, encasements and fireproofing.

1.2 SUBMITTALS

A. Shop Drawings:
   1. Manufacturer's specifications and installation instructions for all materials and reinforcement accessories.
   2. Drawings for fabrication, bending, and placement of concrete reinforcement. Comply with ACI 315, Parts A and B. For walls, show elevations to a minimum scale of 1/4-inch to 1 foot. For slabs, show top and bottom reinforcing on separate plan views. Show bar schedules, stirrup spacing, diagrams of bent bars, arrangements and assemblies, as required for the fabrication and placement of concrete reinforcement, unless otherwise noted. Keep splices to a minimum. Avoid splices in regions of maximum tension stresses whenever possible.

B. Certificates: Submit one (1) copy of steel producer's certificates of mill analysis, tensile and bend tests for reinforcing steel.

1.3 QUALITY ASSURANCE

A. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified:
   1. American Concrete Institute (ACI):
      a. ACI 315, Manual of Engineering and Placing Drawings for Reinforced Concrete Structures.
      b. ACI 318, Building Code Requirements for Reinforced Concrete.
   2. Concrete Reinforcing Steel Institute:
      a. Manual of Standard Practice, includes ASTM standards referred to herein.

B. Allowable Placing Tolerances: Comply with ACI 318, Chapter 7 - Details of Reinforcement.

1.4 DELIVERY, HANDLING AND STORAGE

A. Deliver concrete reinforcement materials to the site bundled, tagged and marked. Use metal tags indicating bar size, lengths, and other information corresponding to markings shown on placement diagrams.

B. Store concrete reinforcement material at the site to prevent damage and accumulation of dirt or excessive rust. Store on heavy wood blocking so that no part of it will come in contact with the ground.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Reinforcing Bars: ASTM A615, Grade 60 for all bars.

B. Mechanical Couplers: Reinforcement bars may be spliced with a mechanical connection. Provide a full mechanical connection which shall develop in tension or compression, as required, at least 125% of specified yield strength (fy) of the bar in accordance with ACI 318 Section 12.14.3.4. The locations of the connections are subject to the approval of the ENGINEER.

C. Steel Wire: ASTM A82.

D. Welded Wire Fabric: ASTM A185. Furnish in flat sheets, not rolls.

E. Column Spirals: Hot-rolled rods for spirals, ASTM A615.

F. Supports for Reinforcement: Bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcement in place.
   1. Use wire bar type supports complying with CRSI recommendations, except as specified below. Do not use wood, brick, or other unacceptable materials.
   2. For slabs on grade, use 5000 psi concrete blocks.
   3. At all formed surfaces, provide supports complying with CRSI "Manual of Standard Practice" as follows: Plastic protected or stainless steel legs.
   4. For all PVC lined concrete surfaces, provide supports complying with CRSI "Manual of Standard Practice" as follows: Either plastic or metal plastic protected legs.

2.2 FABRICATION

A. General: Fabricate reinforcing bars to conform to required shapes and dimensions, with fabrication tolerances complying with CRSI, "Manual of Standard Practice". In case of fabricating errors, do not re-bend or straighten reinforcement in a manner that will injure or weaken the material.

B. Unacceptable Materials: Reinforcement with any of the following defects will not be permitted in the Work:
   1. Bar lengths, bends, and other dimensions exceeding specified fabrication tolerances.
   2. Bends or kinks not shown on approved Shop Drawings.
   3. Bars with reduced cross-section due to excessive rusting or other cause.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine substrate and conditions under which concrete reinforcement is to be placed with installer, and notify ENGINEER, in writing, of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.

3.2 INSTALLATION

A. Comply with the applicable recommendations of specified codes and standards, and CRSI, Manual of Standard Practice, for details and methods of reinforcement placement and supports.

B. Clean reinforcement to remove loose rust and mill scale, oil, earth, ice, and other materials that reduce or destroy bond with concrete.

C. Position, support, and secure reinforcement against displacement during formwork construction or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers and hangers, as required.
   1. Place reinforcement to obtain the minimum concrete cover as shown. Arrange, space, and securely tie bars and bar supports together with 16-gage wire to hold reinforcement accurately in position during concrete placement operations. Set wire ties so that twisted ends are directed away from exposed concrete surfaces.
   2. Do not secure reinforcing steel to forms with wire, nails or other ferrous metal. Do not permit metal supports subject to corrosion to touch or be within the required clearance to formed or exposed concrete surfaces.

D. Install welded wire fabric in as long lengths as practical. Lap adjoining pieces at least one full mesh and lace splices with wire. Do not make end laps midway between supporting beams or directly over beams of continuous structures. Offset end laps in adjacent widths to prevent continuous laps.

E. Provide sufficient numbers of supports of strength required to carry reinforcement. Do not place reinforcing bars more than 2-inches beyond the last leg of any continuous bar support. Do not use supports as bases for runways for concrete conveying equipment or similar construction loads.

F. Splices: Provide reinforcement lap splices by placing bars in contact, and tying tightly with wire. Comply with requirements shown for minimum lap of spliced bars.

G. Mechanical Couplers in Lieu of Lap Splicing:
   1. Provide mechanical butt splices in accordance with the recommendation of the manufacturer of the mechanical splicing device. Butt splices shall develop 125 percent of the specified minimum yield tensile strength of the spliced bars or of the smaller bar in transition splices. Flame dry bars before butt splicing. Provide adequate jigs and clamps or other devices to support, align, and hold the longitudinal centerline of the bars to be butt spliced in a straight line.
   2. Product and Manufacturer: Provide one of the following:
      a. Bar-Lock (MBT) Coupler, as manufactured by Bar-Lock (MBT) Coupler Systems.
      b. Dayton-Superior DBR Coupler - Allow for the reduction of bar area at threads.
      c. Or approved equal.

H. Reinforcement Around Openings: Place an equivalent area of steel around the pipe or opening and extend on each side sufficiently to develop bond in each bar. See the Details on Drawings for bar extension length each side of opening. Where welded wire fabric is used, provide extra reinforcing using fabric or deformed bars.

I. Field Bending: Field bending of reinforcing steel bars is not permitted when rebending will later be required to straighten bars. Rebending of bars at the same place where strain hardening has taken place due to the original bend will damage the bar. Consult

with the ENGINEER prior to any pour if the CONTRACTOR foresees a need to work out a solution to prevent field bending.

3.3 INSPECTION OF REINFORCEMENT

A. Do not place concrete until the reinforcing steel is inspected and permission for placing concrete is granted by ENGINEER. All concrete placed in violation of this provision will be rejected.

+ + END OF SECTION + +

SECTION 03251

CONCRETE JOINTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes installation of concrete joints including, construction joints, expansion joints and fillers, waterstops, and contraction (control) joints.

1.2 REFERENCES

A. American Concrete Institute (ACI)
   1. ACI 301, Specifications for Structural Concrete for Buildings.

B. American Society for Testing and Materials (ASTM)
   1. ASTM A36, Standard Specification for Structural Steel.
   2. ASTM D1752, Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.

C. United States Army Corps of Engineers
   1. CRD-C572, Specifications for Polyvinyl-Chloride Waterstop.

1.3 SYSTEM DESCRIPTION

A. All joints subject to hydrostatic pressure shall be provided with continuous waterstop.

1.4 SUBMITTALS

A. Product Data: Submit for approval, Manufacturer's specifications and installation instructions for all materials required.

B. Shop Drawings: Submit for approval:
   1. Layout of all construction joint locations prior to the submittal of steel reinforcing drawings.
   2. Detail for joining polyvinyl chloride to steel waterstops.

C. Samples: Submit for approval:
   1. Waterstops for joints.
   2. Expansion joint fillers.

1.5 QUALITY ASSURANCE

A. Install all manufactured items in accordance with manufacturer's instructions.

PART 2 - PRODUCTS

2.1 WATERSTOPS

A. Polyvinyl Chloride:
   1. Reference Standard: CRD-C572.
   2. Construction Joints: Minimum of 3/8" thick, ribbed, center bulb type, width as shown, or if not shown, 6-inch minimum.
   3. Expansion Joints: Minimum thickness of 1/4", 9" minimum width. Provide with "O" or "U" shaped center bulb . The "O" shall have an outside diameter of 3/4" minimum.
   4. Product and Manufacturer: Provide polyvinyl chloride waterstops of one of the following:
      a. W.R. Meadows, Incorporated.
      b. A.C. Horn, Incorporated.
      c. Or approved equal.

B. Hydrophillic:
   1. Provide chloroprene rubber waterstops, 3/8" thick.
   2. Product and Manufacturer: Provide one of the following:
      a. Greenestreak Hydrotite.
      b. Or approved equal.

2.2 PREFORMED EXPANSION JOINT FILLER

A. Bituminous type conforming to ASTM D994 or D1751, unless otherwise shown or specified.

2.3 CONCRETE CONSTRUCTION JOINT ROUGHENER

A. Provide a water-soluble non-flammable, surface-retardant roughener.

B. Product and Manufacturer: Provide one of the following:
   1. Rugasol-S, as manufactured by Sika Corporation for horizontal joints.
   2. EAC-S, as manufactured by Preco Industries, Ltd. for horizontal joints.
   3. Tuf-Cote (Deep Etch), as manufactured by Preco Industries Ltd. for vertical joints.
   4. Or approved equal.

2.4 EPOXY BONDING AGENT

A. Provide an epoxy-resin bonding agent, two component type.

B. Product and Manufacturer: Provide one of the following:
   1. Sikadur 32 Hi-Mod LPL, as manufactured by Sika Corporation.
   2. Eucopoxy LPL, as manufactured by the Euclid Chemical Company.
   3. Epoxtite Binder (Code # 2390), as manufactured by A.C. Horn, Incorporated.
   4. Or approved equal.

2.5 RUBBER BONDING AGENT

A. Product and Manufacturer: Provide one of the following:
   1. Scotch-Grip 1300 Rubber Adhesive, as manufactured by 3M Company.
   2. Or approved equal.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine substrate and conditions under which Work is to be performed with installer and notify ENGINEER, in writing, of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.

3.2 CONSTRUCTION JOINTS

A. Comply with ACI 301, Chapter 2.2, and as specified below.

B. Locate and install construction joints as shown. Locate additional construction joints as required to satisfactorily complete all Work.

C. Horizontal Joints:
   1. Roughen concrete at the interface of construction joints by sandblasting to expose the aggregate and remove accumulated concrete on rebar immediately subsequent to form stripping. Immediately before placing fresh concrete, thoroughly clean the existing contact surface using a stiff brush or other tools and a stream of water under pressure. The surface shall be clean and wet, but free from pools of water at the moment the fresh concrete is placed.
   2. Remove laitance, waste mortar or other substance that may prevent complete adhesion.
   3. Place a 3” thick coat of mortar, of similar proportions to the mortar in the concrete, over the surface of the old concrete. Place fresh concrete before the mortar has attained its initial set.

D. Vertical Joints:
   1. Apply roughener to the form in a thin, even film by brush, spray or roller in accordance with the manufacturer's instructions. After roughener is dry, concrete may be placed.
   2. When concrete has been placed and the form removed, wash loosened material off with high-pressure water spray to obtain roughened surface subject to approval by ENGINEER.

3.3 EXPANSION JOINTS

A. Locate and install expansion joints as shown. Install bituminous joint filler in accordance with manufacturer's instructions. Install caulking and sealants as specified in Section 07900, Joint Sealants.

3.4 WATERSTOPS

A. General:
   1. Comply with ACI 301, Chapter 2, and as specified below. Make all joints in accordance with manufacturer's instructions.
   2. Obtain ENGINEER'S approval for waterstop locations not shown.
   3. Provide waterstops in all basements, tanks and other substructures up to an elevation at least 12” above grade or to an elevation at least 12” above highest liquid level in tanks, whichever is higher, except where otherwise shown or noted.

B. Polyvinyl Chloride Waterstop:
   1. Tie waterstop to reinforcement so that it is securely and rigidly supported in the proper position during concrete placement. Continuously inspect waterstops during concrete placement to ensure their proper positioning.
   2. Provide fused waterstops using equipment as supplied by or recommended by the manufacturer.

C. Hydrophilic Waterstop: Install where shown in accordance with manufacturer's recommendations.

3.5 BONDING WITH EPOXY ADHESIVE

A. Use adhesive for the following:
   1. Bonding of fresh concrete to concrete cured at least 45 days or to existing concrete.
   2. Bonding of horizontal surfaces, which will receive a topping.

B. Handle and store epoxy adhesive in compliance with the manufacturer's printed instructions, including safety precautions.

C. Mix the epoxy adhesive in complete accordance with the instructions of the manufacturer.

D. Before placing fresh concrete, thoroughly roughen and clean hardened concrete surfaces and coat with epoxy grout not less than 1/16" thick. Place fresh concrete while the epoxy material is still tacky, without removing the in-place grout coat, and as directed by the epoxy manufacturer.

+ + END OF SECTION + +

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes: Place, finish, cure, strip, and repair concrete.

1.2 REFERENCES

A. American Concrete Institute (ACI)
   1. ACI 211.1, Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete.
   2. ACI 214, Recommended Practice for Evaluation of Strength Test Results of Concrete.
   3. ACI 301, Specifications for Structural Concrete for Buildings, (includes ASTM Standards referred to herein).
   4. ACI 304, Guide for Measuring, Mixing, Transporting and Placing Concrete.
   5. ACI 305, Hot Weather Concreting.
   6. ACI 306, Cold Weather Concreting.
   7. ACI 309, Guide for Consolidation of Concrete.
   8. ACI 311, Guide for Concrete Inspection.
   9. ACI 318, Building Code Requirements for Reinforced Concrete.
   10. ACI 347, Guide to Formwork for Concrete
   11. ACI 350, Environmental Engineering Concrete Structures.

1.3 SYSTEM DESCRIPTION

A. Class A concrete shall be steel reinforced and includes:
   1. Foundations.
   2. Walls.
   3. Slabs.
   4. Beams.
   5. Girders.
   6. Columns.
   7. Equipment bases.
   8. Pipe supports.

B. Class B concrete shall be placed without forms or with simple forms, with little or no reinforcing, and includes:
   1. Concrete fill.
   2. Curbs and gutters.
   3. Sidewalks.
   4. Thrust blocks.
   5. Encasements.

1.4 SUBMITTALS

A. Samples: Submit samples of materials as specified and as otherwise may be requested by ENGINEER, including names, sources and descriptions.

B. Product Data: Submit for approval the following:
   1. Manufacturer's specifications with application and installation instructions for proprietary materials and items, including admixtures and bonding agents.
   2. List of concrete materials and concrete mix designs proposed for use. Include the results of all tests performed to qualify the materials and to establish the mix designs.

C. Laboratory Test Reports: Submit copies of laboratory test reports for materials and mix design tests

D. Delivery Tickets: Furnish to ENGINEER copies of all delivery tickets for each load of concrete delivered to the site. Provide items of information as specified in ASTM C 94, Section 16.

1.5 QUALITY ASSURANCE

A. Tests for Concrete Materials: Submit written reports to ENGINEER, for each material sampled and tested, prior to the start of Work. Provide the Project identification name and number, date of report, name of CONTRACTOR, name of concrete testing service, source of concrete aggregates, material manufacturer and brand name for manufactured materials, values specified in the referenced specification for each material, and test results. Indicate whether or not material is acceptable for intended use.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS

A. Cement:
   1. Portland cement, ASTM C150, Type II; or blended hydraulic cement, ASTM C595, Type 1P (MS).
   2. Do not use cement which has deteriorated because of improper storage or handling.

B. Aggregates: ASTM C 33 and as herein specified.
   1. Do not use aggregates containing soluble salts, substances such as iron sulfides, pyrite, marcasite, ochre, or other materials that can cause stains on exposed concrete surfaces.
   2. Fine Aggregate: Provide clean, sharp, natural sand free from loam, clay, lumps or other deleterious substances.
   3. Coarse Aggregate: Provide clean, uncoated, processed aggregate containing no clay, mud, loam, or foreign matter, as follows:
      a. Crushed stone, processed from natural rock or stone.
      b. Coarse Aggregate Size: Size to be ASTM C33, Nos. 57 or 67, except that No. 467 may be used for footings, foundation mats and walls 16" or greater in thickness.

C. Water: Clean, free from injurious amounts of oils, acids, alkalis, organic materials or other substances that may be deleterious to concrete or steel.

2.2 CONCRETE ADMIXTURES

A. Provide admixtures produced by established reputable manufacturers, and use in compliance with the manufacturer's printed instruction. Do not use admixtures that have

not been incorporated and tested in the accepted mixes, unless otherwise authorized in writing by ENGINEER.

B. Air-Entraining Admixtures: ASTM C260.
   1. Product and Manufacturer: Provide one of the following:
      a. SIKA AER, as manufactured by Sika Corporation.
      b. MB-VR, as manufactured by Master Builders Inc.
      c. Daravair, as manufactured by W.R. Grace & Conn.
      d. Or approved equal.

C. High-Range Water-Reducing Admixture ("Superplasticizer"): ASTM C494, Type F/G.
   1. Do not use high range water-reducing admixture containing more chloride ions than are contained in municipal drinking water. Add only at the job site to concrete in compliance with the manufacturer's printed instruction.
   2. Product and Manufacturer: Provide one of the following:
      a. Sikament 320, as manufactured by Sika Corporation.
      b. Rheobuild 1000 or 716, as manufactured by Master Builders Inc.
      c. Daracem-100, as manufactured by W.R. Grace & Conn.
      d. Or approved equal.

D. Water-Reducing Admixture: ASTM C 494, Type A.
   1. A water-reducing, aqueous solution of a modification of the salt of polyhydroxylated organic acids. Do not use admixture containing any lignin, nitrates or chlorides added during manufacture.
   2. Product and Manufacturer: Provide one of the following:
      a. Eucon WR-75, as manufactured by The Euclid Chemical Company.
      b. Pozzolith, as manufactured by Master Builders Inc.
      c. WRDA-15, as manufactured by W.R. Grace & Conn.
      d. Or approved equal.

E. Pozzolanic Admixtures:
   1. Pozzolanic admixtures shall be used in water-retaining structures, and may be used in other concrete.
   2. Provide Mineral admixtures, when used, meeting the requirements of ASTM C618 Class F.
   3. A substitution by weight, of the portland cement by pozzolan, so that the total tricalcium aluminate content of the resulting cement plus pozzolan is not greater than 8%, will be considered. However, the pozzolan shall not exceed 15% by weight of the cement plus pozzolan.

F. Set-Control Admixtures: ASTM C494, as follows:
   1. Type B, Retarding.
   2. Type C, Accelerating.
   3. Type D, Water-reducing and Retarding.
   4. Type E, Water-reducing and Accelerating.
   5. Type F, Water-reducing, high range admixtures.
   6. Type G, Water-reducing, high range, and retarding admixtures.

G. Calcium Chloride: Do not use calcium chloride in concrete, unless otherwise authorized in writing by ENGINEER. Do not use admixtures containing calcium chloride where concrete is placed against galvanized steel.

2.3 PROPORTIONING AND DESIGN OF MIXES

A. Prepare design mixes of concrete. Mixes subject to the following limitations:
   1. Class A Concrete
      a. Specified 28-day Compressive Strength: 4,000 psi.
      b. Air content: 5% ± 1%.
      c. Slump, before addition of superplasticizer: 3½" ± ½"

Coarse Aggregate Size	Minimum Cement Content-Pounds Per Cubic Yard	Water-Cement Ratio With Superplasticizer
¾"	564	0.375
1"	540	0.385
1 ½"	517	0.400

      d. Use superplasticizer in all Class A Concrete. Use water reducers in combination with superplasticizers as required for mixing.
   2. Class B Concrete
      a. Specified 28-day Compressive Strength: 2,500 psi.
      b. Maximum Water-Cement Ratio by Weight: 0.49.
      c. Slump: 3" Minimum, 5" Maximum.

B. Use an independent testing facility acceptable to ENGINEER for preparing and reporting proposed mix designs.

C. Admixtures:
   1. Use air-entraining admixture in all concrete, except interior slabs subject to abrasion, unless otherwise shown or specified. Add air-entraining admixture at the manufacturer's prescribed rate to result in concrete at the point of placement having air content within the prescribed limits.
   2. Use amounts of admixtures as recommended by the manufacturer for climatic conditions prevailing at the time of placing. Adjust quantities and types of admixtures as required to maintain quality control.

2.4 EPOXY BONDING AGENT

A. For concrete repair and for unplanned cold-joints.

B. Provide an epoxy-resin bonding agent, two component, polysulfide type.

C. Product and Manufacturer: Provide one of the following:
   1. Sikadur 32, Hi-Mod LPL, as manufactured by Sika Corporation.
   2. Eucopoxy LPL, as manufactured by the Euclid Chemical Company.
   3. Or approved equal.

2.5 CONCRETE CURING MATERIALS

A. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 10 ounces per square yard and complying with AASHTO M182, Class 3.

B. Moisture-Retaining Cover: One of the following, complying with ASTM C171.
   1. Waterproof paper.
   2. Polyethylene film.

3. White burlap-polyethylene sheet.

C. Curing Compound: ASTM C 309 Type 1-D (water retention requirements):
   1. Product and Manufacturer: Provide one of the following:
      a. Super Aqua Cure VOX, as manufactured by The Euclid Chemical Company.
      b. Sealtight 1100, as manufactured by W.R. Meadows, Incorporated.
      c. MasterKure, as manufactured by Master Builders, Inc.
      d. Or approved equal.

D. Concrete Densifier and Chemical Hardener (Surface Applied)
   1. Product and Manufacturer: Provide one of the following:
      a. LS Guard, as manufactured by Consolideck.
      b. Liqui-Hard, as manufactured by W. R. Meadows.
      c. Duro-Nox LS, as manufactured by Nox-Crete.
      d. Or approved equal.

2.6 EMBEDDED ITEMS

A. Provide and install items such as plates, angles, inserts, bolts and similar items not specified elsewhere under this Section. Carbon steel embedded items shall be hot dip galvanized after fabrication.

B. Abrasive Stair Nosings
   1. Provide single-component stair nosing
   2. 3-inch width
   3. Aluminum Extrusion, with provisions for anchoring into concrete
   4. Extruded with multiple channels, dovetail shaped, filled with black aluminum oxide grit set in epoxy resin
   5. Designed for installation before concrete sets, at the front edge of the stair
   6. Provide continuous stair nosings, width of stairway less 3 inches on each side. No splices in stair nosings.
   7. Manufacturers/Models:
      a. Balco; Model R315P
      b. Arden Architectural Specialties; Model N-B30
      c. Or Equal

PART 3 - EXECUTION

3.1 CONCRETE MIXING

A. Provide concrete produced by the ready-mixed process.

B. Comply with the requirements of ASTM C 94, and as herein specified. Proposed changes in mixing procedures, other than herein specified, must be accepted by ENGINEER before implementation.
   1. Plant equipment and facilities: Conform to National Ready- Mix Concrete Association "Plant and Delivery Equipment Specification."
   2. Mix concrete in revolving type truck mixers that are in good condition and which produce thoroughly mixed concrete of the specified consistency and strength.
   3. Do not exceed the proper capacity of the mixer.
   4. Mix concrete for a minimum of two minutes after arrival at the job site, or as recommended by the mixer manufacturer.

5. Do not allow the drum to mix while in transit.
6. Mix at proper speed until concrete is discharged.
7. Maintain adequate facilities at the job site for continuous delivery of concrete at the required rates.
8. Provide access to the mixing plant for ENGINEER at all times.

3.2 TRANSPORTING CONCRETE

A. Transport and place concrete not more than 90 minutes after water has been added to the dry ingredients.

B. Take care to avoid spilling and separation of the mixture during transportation.

C. Do not place concrete in which the ingredients have been separated.

D. Do not retemper partially set concrete.

E. Use suitable and approved equipment for transporting concrete from mixer to forms.

3.3 CONCRETE PLACEMENT

A. General: Place concrete continuously so that no concrete will be placed on concrete, which has hardened sufficiently to cause the formation of seams or planes of weakness within the section. If a section cannot be placed continuously, provide construction joints as specified in Section 03251, Concrete Joints. Deposit concrete as nearly as practical in its final location to avoid segregation due to rehandling or flowing. Do not subject concrete to any procedure that will cause segregation.
   1. Screed concrete that is to receive other construction to the proper level to avoid excessive skimming or grouting.
   2. Do not use concrete which becomes non-plastic and unworkable, or does not meet the required quality control limits, or which has been contaminated by foreign materials. Do not use retempered concrete. Remove rejected concrete from the job site and dispose of it in an acceptable location.
   3. Do not place concrete until all forms, bracing, reinforcement, and embedded items are in final and secure position.
   4. Do not place in cold weather, unless adequate precautions are taken against frost action.
   5. Do not place footings, piers or pile caps on frozen soil.
   6. Unless otherwise approved, place concrete only when ENGINEER is present.
   7. Allow a minimum of 3 days before placing concrete against a slab or wall already in place.

B. Concrete Conveying:
   1. Handle concrete from the point of delivery and transfer to the concrete conveying equipment and to the locations of final deposit as rapidly as practical by methods that will prevent segregation and loss of concrete mix materials.
   2. Provide mechanical equipment for conveying concrete to ensure a continuous flow of concrete at the delivery end. Provide runways for wheeled concrete conveying equipment from the concrete delivery point to the locations of final deposit. Keep interior surfaces of conveying equipment, including chutes, free of hardened concrete, debris, water, ice and other deleterious materials.
   3. Pumping concrete is permitted, however do not use aluminum pipe for conveying.

C. Placing Concrete into Forms:
   1. Deposit concrete in forms in horizontal layers not deeper than 36" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place concrete at such a rate that concrete that is being integrated with fresh concrete is still plastic.
   2. Do not permit concrete to free fall within the form from a distance exceeding 5'-0". Use "elephant trunks" or "wall pipes" to prevent free fall and excessive splashing on forms and reinforcement.
   3. Remove temporary spreaders in forms when concrete placing has reached the elevation of such spreaders.
   4. Consolidate concrete placed in forms by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with the applicable recommended practices of ACI 309. Vibration of forms and reinforcing will not be permitted.
   5. Vibrators shall have a frequency of at least 8,000 vpm, with amplitude required to consolidate the concrete in the section being placed. At least one stand-by vibrator in operable condition shall be at the placement site prior to initiating placement of the concrete.
   6. Do not use vibrators to transport concrete inside of forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate the layer of concrete and at least 6" into the preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit the duration of vibration to the time necessary to consolidate the concrete and complete embedment of reinforcement and other embedded items without causing segregation of the mix.
   7. The forms shall contain sufficient windows or be limited in height to allow visual observation of the concrete and the vibrator operators shall be required to see the concrete being consolidated to ensure good quality workmanship or the CONTRACTOR shall have a person who is actually observing the vibration of the concrete at all times and advising the vibrator operators of any changes needed to assure complete consolidation.
   8. Do not place concrete in beam and slab forms until the concrete previously placed in columns and walls is no longer plastic.
   9. Force concrete under pipes, sleeves, openings and inserts from one side until visible from the other side to prevent voids.

D. Placing Concrete Slabs:
   1. Deposit and consolidate concrete slabs in a continuous operation, within the limits of construction joints, until the placing of a panel or section is completed.
   2. Consolidate concrete during placing operations using mechanical vibrating equipment, so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.
   3. Consolidate concrete placed in beams and girders of supported slabs, and against bulkheads of slabs on ground, as specified for formed concrete structures.
   4. Bring slab surfaces to the correct level. Smooth the surface, leaving it free of humps or hollows. Do not sprinkle water on the plastic surface. Do not disturb the slab surfaces prior to beginning finishing operations.

E. Bonding for Next Concrete Pour: Per Section 03251, Concrete Joints.

F. Quality of Concrete Work:
   1. Make all concrete solid, compact and smooth, and free of laitance, cracks and cold joints.

2. All concrete for liquid retaining structures, and all concrete in contact with earth, water, or exposed directly to the elements shall be watertight.
3. Cut out and properly replace to the extent ordered by ENGINEER, or repair to the satisfaction of ENGINEER, surfaces which contain cracks or voids, are unduly rough, or are in any way defective. Thin patches or plastering will not be acceptable.
4. Repair all leaks through concrete, and cracks, holes or other defective concrete in areas of potential leakage and make watertight.
5. Repair, remove, and replace defective concrete as ordered by ENGINEER at no additional cost to OWNER.

G. Cold Weather Placing:
1. Protect all concrete Work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures, in compliance with the requirements of ACI 306 and as herein specified.
2. When the air temperature has fallen to or may be expected to fall below 40°F, provide adequate means to maintain the temperature, in the area where concrete is being placed, at between 50°F and 70°F for at least seven days after placing. Provide temporary housings or coverings including tarpaulins or plastic film. Maintain the heat and protection, if necessary, to ensure that the ambient temperature does not fall more than 30°F in the 24 hours following the seven-day period. Avoid rapid dry-out of concrete due to overheating, and avoid thermal shock due to sudden cooling or heating.
3. When air temperature has fallen to or is expected to fall below 40°F, uniformly heat all water and aggregates before mixing as required to obtain a concrete mixture temperature of not less than 55°F and not more than 85°F at point of placement.
4. Do not use frozen materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials. Ascertain that forms, reinforcing steel, and adjacent concrete surfaces are entirely free of frost and ice before placing concrete.
5. Do not use salt and other materials containing antifreeze agents or chemical accelerators, or set-control admixtures, unless approved by ENGINEER, in mix designs.

H. Hot Weather Placing:
1. When hot weather conditions exist that would seriously impair the quality and strength of concrete, place concrete as recommended by ACI 305 and as herein specified.
2. Cool ingredients before mixing to maintain concrete temperature at time of placement below 85°F. No concrete shall be placed if its temperature exceeds 90°F. Mixing water may be chilled, or chopped ice may be used, or liquid nitrogen may be added.
3. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that the steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
4. Thoroughly wet forms before placing concrete.
5. Do not use set-control admixtures, unless approved by ENGINEER in mix designs.
6. Obtain ENGINEER'S approval of other methods and materials proposed for use.

I. Removal of Forms:
1. The CONTRACTOR shall be responsible for all damage resulting from improper and premature removal of forms. Satisfy all applicable OSHA requirements with regard to safety of personnel and property.

2. Forms and shoring for elevated structural slabs or beams shall remain in place in accordance with ACI 318, Chapter 6, and until the concrete has reached a compressive strength equal to the specified 28-day compressive strength as determined by test cylinders. Removal of all supports prior to obtaining adequate field cured cylinder results and reshoring shall not be permitted.

J. Backfill Against Walls:
   1. Do not place backfill against walls until the concrete has obtained a compressive strength equal to the specified 28-day compressive strength. Where backfill is to be placed on both sides of the wall, the backfill shall be placed simultaneously on both sides to prevent differential pressures.
   2. Since the walls of some structures are laterally restrained or supported by suspended slabs and/or slabs on grade and are not designed as cantilever retaining walls, the CONTRACTOR shall submit a schedule of wall shoring, bracing, and backfilling that is coordinated with the concrete curing, test cylinder reports and the design assumptions and obtain a review from the ENGINEER prior to proceeding.

K. Patching:
   1. Patching of concrete shall provide an acceptable and structurally sound surface finish uniform in appearance or the CONTRACTOR shall upgrade the finish by other means at no additional cost.
   2. Tie Holes: All tie holes, except where sealant is indicated, shall be filled with nonshrink, nonmetallic grout. Color of grout after curing shall match color of adjacent concrete. Through-bolt openings shall be filled with nonshrink grout as specified hereinafter.
   3. Defective Areas: Remove all defective concrete such as honeycombed areas and rock pockets out to sound concrete. Small shallow holes caused by air entrapment at the surface of the forms shall not be considered defects unless the amount is so great as to be considered not the standard of the industry and due primarily of poor workmanship. If chipping is required, the edges shall be perpendicular to the surface. Feather edges shall not be permitted. The defective area shall be filled with a nonshrink, nonmetallic, grout. Use an approved bonding agent on horizontal patches prior to placing nonmetallic, non shrink grout. Since some bonding agents may not be compatible for some vertical surface patching techniques, demonstrate all methods for repair of vertical surfaces using the actual materials, methods, and curing procedures required by the manufactures of the materials on the project site. The CONTRACTOR shall consult with representatives of the bonding agent manufacturer and the nonshrink grout manufacturer, and these representatives shall be onsite and assist in the demonstration.
   4. Blockouts at Pipes or Other Penetrations: Conform to details shown or submit proposed blockouts for review. Use nonshrink, nonmetallic grout.

3.4 FINISH OF FORMED SURFACES

A. Rough Form Finish:
   1. Standard rough form finish is with concrete surface having the texture imparted by the form material, with tie holes and defective areas repaired and patched with mortar of 1 part cement to 1½ parts sand & all fins and other projections exceeding 1/4" in height rubbed down or chipped off.
   2. Use rough form finish for the following:
      a. Exterior vertical surfaces up to 1' below grade.
      b. Interior exposed vertical surfaces of liquid containers up to 1' below liquid level.
      c. Interior and exterior exposed beams and undersides of slabs.

d. Other areas shown.

B. Smooth Form Finish:
   1. Produce smooth form finish (Class A, as defined by ACI-347) by selecting form materials that will impart a smooth, hard, uniform texture. Arrange panels in an orderly and symmetrical manner with a minimum of seams. Repair and patch defective areas as above with all fins or other projections completely removed and smoothed.
   2. Use smooth form finish for surfaces that are to be covered with a coating material. The material may be applied directly to the concrete or may be a covering bonded to the concrete such as waterproofing, damp proofing, painting or other similar system.

C. Smooth Rubbed Finish:
   1. Provide smooth, rubbed finish to concrete surfaces which have received smooth form finish as follows:
      a. Rubbing of concrete surfaces not later than the day after form removal.
      b. Moistening of concrete surfaces and rubbing with carborundum brick or other abrasive until a uniform color and texture is produced. Do not apply cement grout other than that created by the rubbing process.
   2. Except where surfaces have been previously covered as specified above, use smooth rubbed finish for the following:
      a. Interior exposed walls and other vertical surfaces.
      b. Exterior exposed walls and other vertical surfaces down to 1' below grade.
      c. Interior and exterior horizontal surfaces, except exterior exposed slabs and steps.
      d. Interior exposed vertical surfaces of liquid containers down to 1' below liquid level.
      e. Other areas shown.

D. Related Unformed Surfaces:
   1. At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike off smooth and finish with a texture matching the adjacent formed surfaces. Continue the final surface treatment of formed surfaces uniformly across the adjacent unformed surfaces, unless otherwise shown.

3.5 MONOLITHIC SLAB FINISHES

A. Float Finish:
   1. After placing concrete slabs, do not work the surface further until ready for floating. Begin floating when the surface water has disappeared or when the concrete has stiffened sufficiently. Check and level the surface plane to a tolerance not exceeding 1/4" in 10'when tested with a 10' straightedge. Cut down high spots and fill all low spots. Uniformly slope surface to drains as shown. Immediately after leveling, refloat the surface to a uniform, smooth, granular texture.
   2. Use float finish for the following:
      a. Interior horizontal surfaces of liquid containers, except those to receive grout topping.
      b. Exterior below grade horizontal surfaces.
      c. Surfaces to receive additional finishes, except as shown or specified.

B. Trowel Finish:
   1. After floating, begin the first trowel finish operation using a power-driven trowel. Begin final troweling when the surface produces a ringing sound as the trowel is moved over the surface.

2. Consolidate the concrete surface by the final hand troweling operation. Finish shall be free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding 1/8" in 10' when tested with a 10' straight edge. Grind smooth surface defects that would telegraph through applied floor covering system.
3. Use trowel finish for the following:
   a. Interior exposed slabs, unless otherwise shown or specified.
   b. Slabs to receive resilient floor finishes.

C. Non-Slip Broom Finish:
1. Immediately after float finishing, slightly roughen the concrete surface by brooming in the direction perpendicular to the main traffic route. Use fiber-bristle broom, unless otherwise directed. Coordinate the required final finish with ENGINEER before application.
2. Use Non-Slip Broom Finish for the following:
   a. Exterior exposed horizontal surfaces subject to light foot traffic.
   b. Interior and exterior concrete steps and ramps.
   c. Horizontal surfaces which will receive a grout topping or a concrete equipment base slab.

3.6 CONCRETE CURING AND PROTECTION

A. General:
1. Protect freshly placed concrete from premature drying and excessive cold or hot temperature, and maintain without drying at a relatively constant temperature for the period of time necessary for hydration of the cement and proper hardening of the concrete.
2. Start initial curing after placing and finishing concrete as soon as free moisture has disappeared from the concrete surface. Keep continuously moist for not less than 72 hours.
3. Begin final curing procedures immediately following initial curing and before the concrete has dried. Continue final curing for at least seven (7) days and in accordance with ACI 301 procedures. For concrete sections over 30" thick, continue final curing for an additional seven (7) days, minimum. Avoid rapid drying at the end of the final curing period.

B. Curing Methods:
1. Perform curing of concrete by moist curing, or by moisture- retaining cover curing. Use curing compound only in cold weather and only when permitted by ENGINEER. When daytime highs might exceed 90°F, only moist curing shall be used.
   a. For curing, use water that is free of impurities that could etch or discolor exposed, natural concrete surfaces.
2. Provide moist curing, to provide a constant application of excess water by any of the following:
   a. Inundation.
   b. Continuous fog spray.
   c. Covering the concrete surface with the specified absorptive cover, thoroughly saturating the cover with water, and keeping the absorptive cover continuously wet with sprinklers or porous hoses. Place absorptive cover so as to provide coverage of the concrete surfaces and edges, with a 3" lap over adjacent absorptive covers.
3. Provide moisture-retaining cover curing as follows:
   a. Cover the concrete surfaces with the specified moisture-retaining cover for curing concrete, placed in the widest practical width with sides and ends lapped at least

3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during the curing period using cover material and waterproof tape.

4. Provide liquid curing compound as follows:
   a. Apply the specified curing compound to all concrete surfaces when permitted by ENGINEER. Slabs to receive terrazzo floors, chemical resistant heavy duty concrete topping or ceramic tile, shall not be cured with liquid curing compound. The compounds shall be applied immediately after final finishing in a continuous operation by power spray equipment in accordance with the manufacturer's directions. Recoat areas, which are subjected to heavy rainfall within 3 hours after initial application. Maintain the continuity of the coating and repair damage to the coat during the entire curing period. For concrete surfaces, which will be in contact with potable water, the manufacturer shall certify that the curing compound used is EPA approved.

C. Curing Formed Surfaces: Cure formed concrete surfaces, including the undersides of girders, beams, supported slabs and other similar surfaces by moist curing with the forms in place for the full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

D. Curing Unformed Surfaces: Initially cure unformed surfaces, such as slabs, floor topping, and other flat surfaces by using the appropriate method specified above. Final cure unformed surfaces, unless otherwise specified, by utilizing methods specified above, as applicable.

E. Temperature of Concrete During Curing:
   1. When the nighttime low temperature may drop to 40°F or below, maintain the concrete temperature between 50°F and 70°F continuously throughout the curing period, by heating, covering, insulation or housing as required.
   2. When the daytime high temperature may rise to 90°F or above, maintain the concrete temperature at a minimum and reduce temperature variations by provide moist curing continuously for the concrete curing period.
   3. During either of the conditions specified above, the minimum curing time shall be 10 days (240 hours), after which coverings, housings, and insulation shall remain on the work for an additional 3 days, to allow gradual temperature equalization with the atmosphere.

F. Protection from Mechanical Injury: During the curing period, protect concrete from damaging mechanical disturbances including load stresses, heavy shock, excessive vibration, and from damage caused by rain or flowing water. Protect all finished concrete surfaces from damage by subsequent construction operations.

3.7 FIELD QUALITY CONTROL

A. The OWNER will employ a testing laboratory to perform field quality control testing. ENGINEER will direct the number of tests and cylinders required. Furnish all necessary assistance required by ENGINEER.

B. Quality Control Testing During Construction:
   1. Perform sampling and testing for field quality control during the placement of concrete, as follows:
      a. Sampling Fresh Concrete: ASTM C172.
      b. Slump: ASTM C143; one test for each concrete load at point of discharge; and one for each set of compressive strength test specimens.

c. Air Content: ASTM C231; one for the first concrete load, and one for every two concrete loads thereafter, or when required by an indication of change. Adjust mix if test results are unsatisfactory and resubmit for ENGINEER'S approval.
d. Compressive Strength Tests: ASTM C39; one set of 4 standard compression cylinders for each 50 cubic yards or fraction thereof, of each mix design placed in any one day; 1 specimen tested at 7 days, and 2 specimens tested at 28 days, 1 held. Cast, store and cure specimens as specified in ASTM C31.
   1) Adjust mix if test results are unsatisfactory and resubmit for ENGINEER'S approval.
   2) Concrete that does not meet the strength requirements is subject to rejection and removal from the Work, or to other such corrective measures as directed by ENGINEER, at the expense of CONTRACTOR.
e. Concrete Temperature: Test each time a slump test is made.

2. Where questionable field conditions may exist during placing concrete or immediately thereafter, strength tests of specimens cured under field conditions will be required by ENGINEER to check the adequacy of curing and protecting of the concrete placed. Specimens shall be molded at the same time and from the same samples as the laboratory cured specimens.
   a. Provide improved means and procedures for protecting concrete when the 28-day compressive strength of field- cured cylinders is less than 85% of companion laboratory-cured cylinders.
   b. When laboratory-cured cylinder strengths are appreciably higher than the minimum required compressive strength, field-cured cylinder strengths need not exceed the minimum required compressive strength by more than 500 psi even though the 85 percent criterion is not met.
3. The testing laboratory shall submit certified copies of test results directly to ENGINEER and CONTRACTOR after tests are made.

C. Evaluation of Quality Control Tests:
1. Do not use concrete delivered to the final point of placement that has slump or temperature outside the specified values, nor that which is older than 90 minutes from batching.
2. Compressive strength tests for laboratory-cured cylinders will be considered satisfactory if the averages of all sets of three consecutive compressive strength tests results equal or exceed the 28 day design compressive strength of the type or class of concrete; and, no individual strength test falls below the required compressive strength by more than 500 psi.
3. If the compressive strength tests fail to meet the minimum requirements specified, the concrete represented by such tests will be considered deficient in strength and subject to replacement, reconstruction or to other action approved by ENGINEER.

D. Testing Concrete Structure for Strength:
1. When there is evidence that the strength of the in-place concrete does not meet specification requirements, provide the services of a concrete testing service to take cores drilled from hardened concrete for compressive strength determination at no additional expense to OWNER. Provide tests complying with ASTM C42 and the following:
   a. Take at least three (3) representative cores from each member or suspect area at locations directed by ENGINEER.
   b. Strength of concrete for each series of cores will be considered satisfactory if their average compressive strength is at least 85% and no single core is less than 75% of the 28 day required compressive strength.

c. Report test results, in writing, to ENGINEER on the same day that tests are made. Include in test reports the Project identification name and number, date, name of CONTRACTOR, name of concrete testing service, location of test core in the structure, type or class of concrete represented by core sample, nominal maximum size aggregate, design compressive strength, compression breaking strength and type of break (corrected for length-diameter ratio), direction of applied load to core with respect to horizontal plane of the concrete as placed, and the moisture condition of the core at time of testing.

2. Fill core holes solid with non-shrink, high strength grout, and finish to match adjacent concrete surfaces.

E. Water Leakage Tests for All Water-Holding Structures:

1. All water-holding structures shall be subjected to leakage tests after the concrete has been cured and obtained its design strength, and before backfill, brick facing, or other work which will cover the concrete surfaces of the walls is begun. Water leakage tests shall be conducted by the CONTRACTOR as follows:
   a. All water-holding structures shall be filled with water to the maximum liquid level shown on the Drawings prior to leak testing. After these structures have been kept full for 48-hours, it will be assumed for the purpose of the test that the absorption of moisture by the concrete in the basin is complete. All valves and gates to the structure shall then be closed and the change in water surface measured for a 24-hour period.
   b. During the test period, all exposed portions of the structure shall be examined for dampness or leaks and all visible leaks or damp spots shall be marked; such leaks or damp spots shall be later patched or corrected in a manner acceptable to the ENGINEER prior to additional leakage testing. If the drop in water surface in the 24-hour period exceeds 1/10 of 1 percent of the normal volume of liquid contained in the water-holding structure, after accounting for evaporation and precipitation in open basins, or if damp spots or any seepage is present on the walls or other areas exposed to view, the leakage shall be considered excessive and the leakage test will be considered to have failed. Evaporation shall be determined by floating an evaporation pan in the structure during the test period.
   c. If the leakage is excessive, and if damp spots and observed seepage is present on exposed surfaces, the water-holding structure shall be drained, all leaks and damp spots previously marked shall be patched, and the necessary repairs made, and the basin shall be retested. The CONTRACTOR's method of repair shall be subject to the requirements of these specifications and submitted for review by the ENGINEER.
   d. The water-holding structure shall then be refilled and again tested for leakage and this testing and repair process shall be repeated as many time as necessary until the leakage test passes. This process shall be continued until the drop in water surface in a 24-hour period with the basin full is less than 1/10 of 1 percent of the volume of liquid held in the basin and all damp spots and seepage disappears when the structures are full of water. All repairs of faulty workmanship and materials, and additional tests, shall be made by the CONTRACTOR in an acceptable manner, at no additional cost to the OWNER. Both the correction for excessive leakage and the removal of the damp or wet spots on wall shall be required to pass the leakage test.
   e. The purpose of this test is to determine the integrity of the finished concrete and to show that the exposed wall surfaces are visually acceptable. Therefore, all other equipment. e.g., stop gates, sluice gates, etc. or temporary bulkheads, should be made watertight prior to the test.

f. As an alternative to having watertight bulkheads, gates or valves, the CONTRACTOR shall accurately measure the leakage through gates, valves, and bulkheads with methods acceptable to the ENGINEER.
g. An assumed leakage through gates and valves based on the manufacturer's recommendations is not acceptable.

3.8 MISCELLANEOUS CONCRETE ITEMS

A. Filling-In: Fill-in holes and openings left in concrete structures for the passage of work by other contractors, unless otherwise shown or directed, after the work of other contractors is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide all other miscellaneous concrete filling shown or required to complete the Work.

B. Curbs:
1. Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
2. Exterior curbs shall have rubbed finish for vertical surfaces and a broomed finish for top surfaces.

C. Equipment Bases:
1. Unless specifically shown otherwise, provide concrete bases for all pumps and other equipment. Construct bases to the dimensions shown, or as required to meet manufacturers; requirements and drawing elevations. Where no specific elevations are shown, bases shall be 6-inches thick and extend 3-inches outside the metal equipment base or supports. Bases to have smooth trowel finish, unless a special finish such as terrazzo, ceramic tile or heavy duty concrete topping is required. In those cases, provide appropriate concrete finish.
2. Include all concrete equipment base work not specifically included under other Sections.
3. In general, place bases up to 1-inch below the metal base. Properly shim equipment to grade and fill 1-inch void with non-shrink grout as specified in Section 03600, Grout.

D. Installation of embedded items
1. Install all embedded items prior to concrete placement, or, if necessary, as soon after concrete placement as possible, before concrete is set.
2. Use temporary support and bracing to keep embedded items in place while concrete cures.
3. Protect all embedded items from damage during concrete installation.

3.9 CONCRETE REPAIRS

A. Repair of Formed surfaces:
1. Repair exposed-to-view formed concrete surfaces, that contain defects which adversely affect the appearance of the finish. Surface defects that require repair include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, and holes left by the rods and bolts; fins and other projections on the surface; and stains and other discolorations that cannot be removed by cleaning.
2. Repair concealed formed concrete surfaces that may contain defects that adversely affect the durability of the concrete. Surface defects that require repair include cracks in excess of 0.01-inch wide, cracks of any width and other surface deficiencies

which penetrate to the reinforcement or completely through non-reinforced sections, honeycomb, rock pockets, holes left by tie rods and bolts, and spalls except minor breakage at corner.
3. Repair structural cracks and cracks in water-holding structures.

B. Method of Repair of Formed Surfaces:
1. Repair and patch defective areas with cement mortar immediately after removal of forms and as directed by ENGINEER.
2. Cut out honeycomb, rock pockets, voids over 1/2" diameter, and holes left by tie rods and bolts, down to solid concrete but, in no case, to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Before placing the cement mortar, thoroughly clean, dampen with water, and brush-coat the area to be patched with the specified bonding agent.
   a. For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, the patching mortar color will match the color of the surrounding concrete. CONTRACTOR shall impart texture to repaired surfaces to match texture of existing adjacent surfaces. Provide test areas at inconspicuous locations to verify mixture, texture and color match before proceeding with the patching. Compact mortar in place and strike off slightly higher than the surrounding surface.
3. Cracks that require repair shall be pressure grouted using one of the following. Apply in accordance with the manufacturer's directions and recommendations.
   a. Sikadur 35, Hi-Mod L.V. and Sikadur 31, Hi-Mod Gel, as manufactured by Sika Corporation Company.
   b. Euco Epoxy #452 Epoxy System, as manufactured by The Euclid Chemical Company.
   c. Or approved equal.
4. Fill holes extending through concrete by means of a plunger- type gun or other suitable device from the least exposed face, using a flush stop held at the exposed face to ensure completely filling.
5. Sandblast exposed-to-view surfaces that require removal of stains, grout accumulations, sealing compounds, and other substances marring the surfaces. Use sand finer than No. 30 and air pressure from 15 to 25 psi.

C. Repair of Unformed Surfaces:
1. Test unformed surfaces, such as monolithic slabs, for smoothness and to verify surface plane to the tolerances specified for each surface and finish. Correct low and high areas as herein specified.
2. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using a template having the required slope. Correct high and low areas as herein specified.
3. Repair finish of unformed surfaces that contain defects which adversely affect the durability of the concrete. Surface defects, as such, include crazing, cracks in excess of 0.01-inch wide or which penetrate to the reinforcement or completely through non-reinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets, and other objectionable conditions.
4. Repair structural cracks and cracks in water-holding structures.

D. Methods of Repair of Unformed Surfaces:
1. Correct high areas in unformed surfaces by grinding, after the concrete has cured sufficiently so that repairs can be made without damage to adjacent areas.
2. Correct low areas in unformed surfaces during, or immediately after completion of surface finishing operations by cutting out the low areas and replacing with fresh

concrete. Finish repaired areas to blend into adjacent concrete. Use one of the following. Apply in accordance with the manufacturer's directions and recommendations.
   a. Euco Poly-Patch, as manufactured by The Euclid Chemical Company.
   b. Sikatop 122, as manufactured by Sika Corporation.
   c. Or approved equal.
3. Repair defective areas, except random cracks and single holes not exceeding 2" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts, and expose reinforcing steel with at least 3/4" clearance all around. Dampen all concrete surfaces in contact with patching concrete and brush with the specified bonding agent. Place patching concrete before grout takes its initial set. Mix patching concrete of the same materials and proportions to provide concrete of the same type or class as the original adjacent concrete. Place, compact and finish as required to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.
4. Repair isolated random cracks, and single holes not over 2" diameter, by the dry-pack method. Groove the top of cracks, and cut out holes to sound concrete and clean of dust, dirt and loose particles. Dampen all cleaned concrete surfaces and brush with the specified bonding agent. Place dry-pack before the cement grout takes its initial set. Mix dry-pack, consisting of 1 part portland cement to 2½ parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched areas continuously moist for not less than 72 hours.
5. Cracks that require repair shall be pressure grouted using one of the following. Apply in accordance with the manufacturer's directions and recommendations.
   a. Sikadur 35, Hi-Mod L.V. and Sikadur 31, Hi-Mod Gel, as manufactured by Sika Corporation.
   b. Euco Epoxy #452 Epoxy System, as manufactured by The Euclid Chemical Company.
   c. Or approved equal.
6. Assure that surface is acceptable for flooring material to be installed in accordance with manufacturer's recommendations.

E. Other Methods of Repair:
   1. Repair methods not specified above may be used if approved by ENGINEER.

+ + END OF SECTION + +

SECTION 03600

GROUT

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes epoxy, non-metallic, non-shrink, and ordinary Portland cement grouts for:
   1. Column and beam bearing.
   2. Equipment bases.
   3. Handrails and railings.
   4. Construction joints.
   5. Intrusion grouting.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)
   1. ASTM C144, Standard Specification for Aggregate for Masonry Mortar.
   2. ASTM C150, Standard Specification for Portland Cement.
   3. ASTM C109, Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (using 2-in. or 50 mm. Cube Specimens).
   4. ASTM C191, Time of Setting of Hydraulic Cement by Vicat Needle.

B. United States Army Corps of Engineers
   1. CRD-C-619, Specification for Grout Fluidifier.
   2. CRD-C-621, Specification for Non-Shrink Grout.

1.3 SYSTEM DESCRIPTION

A. Classes of Ordinary Cement Type Grout:
   1. Provide Class A ordinary cement type grout having a compression strength of 4000 psi and include the following:
      a. Foundation grout.
      b. Construction joint grout.

1.4 SUBMITTALS

A. Shop Drawings:
   1. Manufacturer's specifications and installation instructions for all proprietary materials.
   2. For ordinary cement grout, copies of grout design mix and laboratory strength test reports.

B. Reports and Certificates:
   1. For proprietary materials, submit copies of reports on quality control tests.
   2. Submit certification that materials meet specification requirements for nonproprietary materials.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Delivery of Materials: Deliver grout materials from manufacturers in unopened containers and bearing intact manufacturer's labels.

B. Storage of Materials: Store grout materials in a dry shelter and protected from moisture.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Nonmetallic, 100% solids, high strength epoxy grout.
   1. Use prepackaged, solvent-free, moisture insensitive, high strength epoxy grout.
   2. Product and Manufacturer: Provide one of the following:
      a. Euco High Strength Grout, as manufactured by The Euclid Chemical Company.
      b. Sikadur 42 Grout Pak, as manufactured by Sika Corporation.
      c. Five Star Epoxy Grout by Five Star Products, Incorporated.
      d. Or approved equal.

B. Nonshrink, Nonmetallic Grout:
   1. Prepackaged non-staining cementious grout which shall meet the minimum requirements of CRD C-621 and requiring only the addition of water at the jobsite.
   2. Product and Manufacturer: Provide one of the following:
      a. Euco N-S, as manufactured by The Euclid Chemical Company.
      b. Masterflow 928, as manufactured by Master Builders, Incorporated.
      c. Sika Grout 212, as manufactured by Sika Corporation.
      d. Or approved equal.

C. Ordinary Cement-Sand Grout: Prepare design mixes of ordinary cement grout.
   1. Cement: Portland cement, ASTM C150, Type II; or blended hydraulic cement, ASTM C595, Type 1P.
   2. Aggregates: ASTM C33 and as herein specified.
      a. Do not use aggregates containing soluble salts or other substances such as iron sulfides, pyrite, marcasite, ochre, or other materials that can cause stains on exposed concrete surfaces.
      b. Fine Aggregate: Clean, sharp, natural sand, free from loam, clay, lumps or other deleterious substances.
         1) Dune sand, bank run sand and manufactured sand are not acceptable.
      c. Coarse Aggregate: Clean, uncoated, processed aggregate containing no clay, mud, loam, or foreign matter, as follows:
         1) Crushed stone, processed from natural rock or stone.
         2) Washed gravel, either natural or crushed. Use of slag and pit or bank run gravel is not permitted.
         3) Coarse Aggregate Size: Size to be ASTM C33, No. 7 for Class B grout. Coarse aggregate not permitted in Class A grout.
   3. Admixtures: Provide admixtures produced by established reputable manufacturers and use in compliance with the manufacturer's printed instruction. Do not use admixtures that have not been incorporated and tested in the accepted mixes, unless otherwise authorized in writing by ENGINEER. Refer to Section 03300, Cast-In-Place Concrete, for additional admixture requirements.
   4. Proportioning and Design of Mixes: Prepare design mixes for each class of grout. Mixes are subject to the following limitations:

a. Class A Grout:
    1) Specified 28-day Compressive Strength: 4,000 psi.
    2) Minimum amount of water necessary for the mixture to flow under its own weight.
    3) Fine Aggregate meeting ASTM C33.
    4) Air Content Percentage: 6%.
    5) Minimum Cement Content in Pounds per Cubic Yard: 658.
    6) Slump at point of placement: 5"±1".

5. Proportion mixes by either laboratory trial batch or field experience methods, using materials to be employed on the Project for grout required. Comply with ACI 211.1 and provide a complete report, from an independent testing laboratory, to ENGINEER, at least 30 days prior to start of Work. Do not begin grout production until ENGINEER has approved mixes.
6. Laboratory Trial Batches: When laboratory trial batches are used to select grout proportions, prepare test specimens and conduct strength tests as specified in ACI 301, Chapter 3 - Proportioning.
7. Field Experience Method: When field experience methods are used to select grout proportions, establish proportions as specified in ACI 301, Chapter 4.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine the substrate and conditions under which grout is to be placed with installer and notify ENGINEER, in writing, of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions have been corrected in a manner acceptable to ENGINEER.

3.2 INSTALLATION

A. General:
    1. Place grout as shown and in accordance with manufacturer's instructions. If manufacturer's instructions conflict with the Specifications, do not proceed until ENGINEER provides clarification.
    2. Manufacturers of proprietary products shall make available upon 72 hours notification the services of a qualified, full time employee to aid in assuring proper use of the product under job conditions. The cost of this service, if any, shall be borne by CONTRACTOR.
    3. When placing grout conform to temperature and weather limitations in Section 03300, Cast-In-Place Concrete.

B. Columns, Beams and Equipment Bases:
    1. After shimming equipment indicated to be epoxy grouted on the plans to proper grade, securely tighten anchor bolts. Properly form around the base plates, allowing sufficient room around the edges for placing the grout. Adequate depth between the bottom of the base plate and the top of concrete base must be provided to assure that the void is completely filled with the epoxy grout.
    2. After shimming columns, beams and equipment indicated to be nonshrink grouted on the plans to proper grade, securely tighten anchor bolts. Properly form around the base plates allowing sufficient room around the edges for placing the grout. Adequate depth between the bottom of the base plate and the top of concrete base must be provided to assure that the void is completely filled with the non-shrink, non-metallic grout.

C. Handrails and Railings: After posts have been properly inserted into the holes or sleeves, fill the annular space between posts and sleeve with the non-shrink, non-metallic grout. Bevel grout at juncture with post so that moisture flows away from posts.

D. Construction Joints: Place a 2" thick coat of ordinary Class A cement grout over the contact surface of the old concrete at the interface of horizontal construction joints as outlined in Section 03251, Concrete Joints, and Section 03300, Cast-In-Place Concrete, of these Specifications.

+ + END OF SECTION + +

DIVISION 4

(NOT USED)

DIVISION 5

SECTION 05051

ANCHORS, INSERTS, AND DRILL AND BOND DOWELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes all anchors and inserts required to anchor parts of the Work to supporting concrete or masonry construction, and plaster. This Section also includes bonding materials for anchoring rebar dowels into existing concrete.

1.2 REFERENCES

A. American Society for Testing and Materials
   1. ASTM A36, Standard Specification for Structural Steel.
   2. ASTM A123, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
   3. ASTM A153, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
   4. ASTM A194, Standard Specification for Carbon and Alloy Steel Nuts for High-Pressure or High-Temperature Service, or both.
   5. ASTM A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.
   6. ASTM A320, Standard Specification for Alloys - Steel Bolting Materials for Low-Temperature Service.
   7. ASTM A484, Standard Specification for General Requirements for Stainless and Heat-Resisting Steel Bars, Billets and Forgings.
   8. ASTM A525, Standard Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.

1.3 SYSTEM DESCRIPTION

A. Provide the size, type, and length of anchor shown on the drawings or, if not shown, as specified in the detailed sections of these specifications.

B. When the size, length or load carrying capacity of an anchor bolt, expansion anchor, toggle bolt, or concrete insert is not shown or specified, provide the size, length and capacity required to carry the design load times a minimum safety factor of 4.

C. For equipment anchors, if the design load is not specified by the manufacturer, provide anchors of diameter no less than the diameter of the hole minus 3/16".

1.4 SUBMITTALS

A. Shop Drawings: Submit for approval copies of manufacturer's specifications, load tables, dimension diagrams and installation instructions for the devices.

1.5 QUALITY ASSURANCE

A. Expansion anchors and inserts shall be ICC approved.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Provide AISI Type 304 stainless steel anchors, nuts and washers complying with ASTM A320. Other AISI types may be used, subject to ENGINEER'S approval.

2.2 ANCHOR BOLTS

A. Nonsubmerged Use:

1. Stainless Steel A320 Type 316: For equipment and machinery, where permanently anchored into concrete, unless otherwise shown.
2. Diameter, Length and Bend Dimensions: As required by equipment or machinery manufacturer. Unless otherwise required, provide 3/4–inch minimum diameter and other geometry as shown.
3. Furnish minimum two nuts and a washer of same material for each bolt. Nuts stainless steel A194.
4. Provide sleeves as required or as shown for location adjustment.

B. Submerged Use:

1. Submerged use is defined as any connection below a point 1 foot 6 inches above maximum water surface elevation in a water holding basin.
2. As specified for nonsubmerged use, for equipment, machinery or other connections except as follows:
   a. Coating of anchor bolt threads is not required.
   b. Where threads are covered with fusion bonded coating, provide nut of proper size to fit and provide connection of equal strength to embedded bolt.

C. For anchoring fabricated metalwork or structural building columns, or other components where connections will be protected or dry:

1. Galvanized Steel
2. Minimum Size: ¾-inch diameter by 12-inch long, unless otherwise shown.
3. Furnish two nuts and one washer per bolt of same material as bolt, unless otherwise shown.

D. For anchoring fabricated metalwork or structural building, or structural frame components in areas of wet use, washdown areas, or areas outside heated buildings:

1. Stainless steel.
2. Minimum Size: ¾-inch diameter by 12-inch long, unless otherwise shown
3. Furnish two nuts and one washer per bolt of same material as bolt, unless otherwise shown.

2.3 ANCHOR BOLT SLEEVE

A. High Density Polyethylene Plastic:

1. Single unit construction with deformed sidewalls such that the concrete and grout lock in place.
2. The top of the sleeve shall be self-threading to provide adjustment of the threaded anchor blot projection.
3. Material requirements shall conform to the following:
   a. Plastic: High density polyethylene.
   b. Density: ASTM D1505.

c. Vicant Softening Point: ASTM D1525
d. Brittleness Temperature: ASTM D746

B. Fabricated Steel Sleeve:
1. Material: A36 steel.
2. Dimensions, welding, and sizes as shown.

2.4 STAINLESS STEEL FASTENERS LUBRICANT (ANTISEIZING)

A. Provide for stainless steel nuts and machined bolts, anchor bolts , concrete anchors, and all other threaded fasteners.

B. Lubricant shall contain substantial amounts of molybdenum disulfide, graphite, mica, talc, or copper as manufactured by:
1. Loc Tite Co., Permatex.
2. Or equal

2.5 CONCRETE INSERTS

A. For vertical support of grating or floor plate, provide cast-in metal fabrications as shown.

B. Except as permitted below, or as otherwise shown, provide malleable iron inserts for hanging piping and conduit from concrete ceilings and soffits. Comply with Federal Specification WW-H-171-E (Type 18). Provide those recommended by the manufacturer for the required loading.

C. Obtain inserts in sufficient time so as not to delay concrete or masonry work.

D. Product and Manufacturer: Provide inserts of one of the following:
1. Figure 282, as manufactured by Anvil/Grinnell.
2. No. 380, as manufactured by Hohmann and Barnard, Incorporated.
3. Or equal.

2.6 ADHESIVE ANCHORS

A. Provide adhesive anchors where specifically shown and where adhesive anchors are allowed. Unless otherwise shown, adhesive anchors are allowed for anchoring:
1. Supports for pipe, conduit, and electrical boxes, devices, and panels, on floors and walls
2. Handrails, guardrails, sunshades, stairs,
3. Fixtures and equipment on floors and walls, and
4. Single pipes and conduits <2” in diameter to ceilings and soffits.

B. Adhesive anchors shall consist of type 316 stainless steel all-thread rod, washer and nut.

C. Adhesive shall be epoxy resin. Vinylester resin anchors are NOT allowed.

D. Product and Manufacturer: Provide one of the following:
1. HIT RE 500, as manufactured by Hilti, Incorporated.
2. C-6, as manufactured by ITW Ramset/Red Head.
3. SET as manufactured by Simpson Strong-Tie, Inc.
4. Or equal.

2.7 EXPANSION ANCHORS

A. Provide expansion anchors only where specifically shown and where expansion anchors are allowed. Unless otherwise shown, and except as noted below, expansion anchors are allowed for anchoring:
   1. Supports for pipe, conduit, and electrical boxes, devices, and panels, to floors and walls,
   2. Handrails, guardrails, and sunshades,
   3. Fixtures and equipment which have no moving parts, to floors and walls.

B. Expansion anchors are NOT allowed in any submerged or chemical containment areas.

C. Wedge anchors: Provide one of the following:
   1. Hilti Kwik Bolt TZ by Hilti Fastening Systems, Inc.
   2. Trubolt Wedge by ITW Ramset/Red Head, Inc.
   3. Or equal.

D. Drop-in anchors: Provide one of the following:
   1. HDI, by Hilti Fastening Systems, Inc.
   2. Multi-Set II, by ITW Ramset/Red Head, Inc.
   3. Or equal.

2.8 TOGGLE BOLTS

A. Provide toggle bolts only where specifically shown, to fasten single pipes and conduits <1" and equipment weighing less than 50 lbs (4-bolts required) to hollow walls.

B. Provide spring-wing toggle bolts, with two-piece wings, carbon steel bolts with zinc coating in accordance with Federal Specification FF-S-325.

C. Product and Manufacturer: Provide toggle bolts of one of the following:
   1. The Rawlplug Company, Incorporated.
   2. Haydon Bolts, Incorporated.
   3. Or equal.

2.9 DRILL AND BOND DOWELS

A. Drilling and bonding dowels shall conform to the details shown on the plans, and these specifications.

B. Dowels shall conform to the provisions for bar reinforcement in Section 3200 "Concrete Reinforcing" of these Specifications.

C. The bonding materials shall be magnesium phosphate concrete, either single component (water activated) or dual component (with a prepackaged liquid activator), as approved by the ENGINEER. Magnesium phosphate concrete shall conform to the following requirements:

Property	Test Method	Requirements
Compressive Strength		
At 3 hours, MPa	California Test 551	21 min.
At 24 hours, MPa	California Test 551	35 min.
Flexure Strength		
At 24 hours, MPa	California Test 551	3.5 min.
Bond Strength: at 24 hours		
SSD Concrete, MPa	California Test 551	2.1 min.
Dry concrete, MPa	California Test 551	2.8 min.
Water Absorption, %	California Test 551	10 max.
Abrasion Resistance		
At 24 hours	California Test 550	25 max.
Drying Shrinkage at 4 days, %	ASTM Designation: C596	0.13 max.
Soluble Chlorides by weight, %	California Test 442	0.05 max.
Water Soluble Sulfates by weight, %	California Test 417	0.25 max.

D. Magnesium phosphate concrete shall be formulated for minimum initial set time of 15 minutes and minimum final set time of 25 minutes at 70ºF. The materials, prior to use, shall be stored in a cool, dry environment.

E. Mix water used with water activated material shall conform to the provisions in Section 3300 Concrete. The quantity of water for single component type or liquid activator (for dual component type) to be blended with dry component, shall be within the limits recommended by the manufacturer and shall be the least amount required to produce a pourable batter.

F. Addition of retarders, when required and approved by the ENGINEER, shall be in conformance with the manufacturer's recommendations.

2.10 OTHERS

A. Powder actuated fasteners and other types of anchors not specified herein shall not be used, unless approved by ENGINEER.

PART 3 - EXECUTION

3.1 INSTALLATION OF ANCHORS

A. Drilling equipment used and installation of post-installed anchors shall be in accordance with manufacturer's instructions.

B. Assure that embedded items are protected from damage and are not filled in with concrete.

C. Unless otherwise shown, the minimum diameter of anchor bolts for structural steel is 3/4", and for other applications, 3/8".

D. Unless otherwise shown, provide the following minimum embedment, where "d" is the nominal anchor diameter:
   1. Cast-in-place anchors: 12d.
   2. Adhesive anchors: 12d.
   3. Wedge anchors: 8d.

E. Unless otherwise shown, provide a minimum edge distance equal to six times the bolt diameter and a bolt spacing equal to twelve times the bolt diameter.

F. For the adhesive and expansion anchors and adhesive material, CONTRACTOR shall comply with the manufacturer's installation instructions on the hole diameter and depth.

G. CONTRACTOR shall properly clean out the hole utilizing a wire brush and compressed air to remove all loose material from the hole, prior to installing adhesive or expansion anchor.

3.2 INSTALLATION OF DRILL AND BOND DOWELS

A. Drilling of holes and bonding of dowels shall conform to the following:
   1. Magnesium phosphate concrete shall not be mixed in containers or worked with tools containing zinc, cadmium, aluminum or copper metals.
   2. The holes shall be drilled by methods that will not shatter or damage the concrete adjacent to the hole. The diameter of the drilled hole shall be ½-inch larger than the nominal diameter of the dowels.
   3. If reinforcement is encountered during drilling before the specified depth is attained, the ENGINEER shall be notified. Unless the ENGINEER approves coring through the reinforcement, the hole will be rejected and a new hole, in which reinforcement is not encountered, shall be drilled adjacent to the rejected hole to the depth shown on the plans.
   4. The drilled holes shall be clean and dry at the time of placing the bonding material and the steel dowels. Bonding material and dowel shall completely fill the drilled hole. The surface temperature shall be 40º F or above when the magnesium phosphate concrete is placed.
   5. After bonding, dowels shall remain undisturbed for a minimum of 3 hours or until the magnesium phosphate concrete has reached a strength sufficient to support the dowels. Dowels that are improperly bonded, as determined by the ENGINEER, shall be removed. The holes shall be cleaned or new holes shall be drilled and the dowels replaced and securely bonded to the concrete. Removing, redrilling and replacing improperly bonded dowels shall be performed at the Contractor's expense.

3.3 FIELD QUALITY CONTROL

A. CONTRACTOR shall employ a testing laboratory to perform field quality testing of installed anchors. A minimum of 10% of the expansion anchors, adhesive anchors and reinforcing bars greater than 3/8" diameter are to be tested to 50% of the ultimate tensile capacity of the anchor or reinforcing bar.

B. If failure of any of the adhesive anchors or reinforcing bars occurs, CONTRACTOR will be required to pay for the costs involved in testing the remaining 90%.

C. CONTRACTOR shall correct improper workmanship, remove and replace, or correct as instructed by the ENGINEER, all anchors or bars found unacceptable or deficient, at no additional cost to the OWNER.

D. The independent testing and inspection agency shall complete a report on each area. The report should summarize the observations made by the inspector and be submitted to ENGINEER.

E. Provide access for the testing agency to places where Work is being produced so that required inspection and testing can be accomplished.

+ + END OF SECTION + +

SECTION 05500

MISCELLANEOUS METALS

PART 1 - GENERAL

1.1 SUMMARY

A. Work necessary to furnish and install, complete, fabricated metalwork and castings as shown or as required to secure various parts together and provide a complete installation.

1.2 SUBMITTALS

A. Shop Drawings: Submit Shop Drawings for the fabrication and erection of the miscellaneous metal Work. Include plans, elevations and details of sections and connections. Clearly show all field connections. Show anchorage and accessory items.

B. Product Data: Submit copies of manufacturer's specifications, load tables, dimensions, diagrams, anchor details, and installation instructions for manufactured products.

C. Samples: Submit representative samples of manufactured products.

1.3 QUALITY ASSURANCE

A. Field Measurements: Take field measurements prior to preparation of Shop Drawings and fabrication to ensure proper fitting of the Work.

B. Shop Assembly: Preassemble items in the shop to the greatest extent possible, so as to minimize field splicing and assembly of units at the project site. Disassemble units to the extent necessary for shipping limitations. Clearly mark units for reassembly and coordinated installation.

C. Qualifications: Qualify welding operators in accordance with requirements of current AWS Standard Qualification Procedure D1.1, Chapter 5.
   1. Qualification Tests: Performed by a recognized testing laboratory.

D. Certification: Certify welders of structural and reinforcing steel for all positions of welding in accordance with such procedure.

PART 2 - PRODUCTS

2.1 GENERAL

A. Like Items of Materials: Provide end products of one manufacturer in order to achieve standardization for appearance, operation, maintenance, replacement, and manufacturer’s service.

B. Lifting Lugs: Provide on equipment and equipment components weighing over 100 pounds.

C. Furnish miscellaneous items:
   1. Miscellaneous metalwork and castings as shown, or as required to secure various parts together and provide a complete installation.
   2. Items specified herein are not intended to be all-inclusive. Provide metalwork and castings shown, specified, or which can reasonably be inferred as necessary to complete the project.

2.2 MATERIALS

A. Wide flange sections: ASTM A992 Grade 50.

B. Steel pipe columns: ASTM A53 Grade B.

C. Hollow Structural Sections (HSS): ASTM A500 Grade B.

D. Plates, Angles, Channels, and S Shapes: ASTM A36.

E. Stainless Steel:
   1. Plates and Sheets: ASTM A240, Type 304L or 316
   2. Fasteners and fittings: ASTM A320, Type 304L or 316

F. Aluminum, Structural Shapes and Plates: Alloy 6061-T6, meeting Aluminum Assoc. Specification for Aluminum Structures

G. Cast Iron: A48, Class 30

H. Galvanizing:
   1. Zinc coated hardware: ASTM A153.
   2. Fabrications: ASTM A123.

I. Surface preparation and Finish:
   1. Steel: Where not indicated to be galvanized, steel shall be primed in the shop. Comply with Section 09900, Painting.

2.3 FABRICATIONS

A. Miscellaneous Framings and Supports:
   1. Fabricate units to the sizes, shapes, and profiles shown, or if not shown, of the required dimensions to receive the adjacent gratings, plates, tanks, doors, or other work to be retained by the framing.
   2. Except as otherwise shown, fabricate from structural shapes, plates, and bars of compatible material, all-welded construction, using mitered corners, welded brackets and splice plates, and a minimum number of joints for field connection. Cut, drill, and tap units to receive hardware and other items to be anchored to the work.
   3. Equip units with integrally welded anchors for casting into concrete or integrating into masonry. Furnish inserts for casting in, if units must be installed after concrete or grout is placed. Anchor spacing shall be 24" on-center, unless otherwise shown.
   4. Galvanize where shown.

B. Miscellaneous Fabricated Metals:
   1. The following additional items are listed as a guide. Some items on list may not be required, and list may not be all-inclusive. Submittal data for materials and products must be approved before they are incorporated in the work.

a. Access Walkway
b. Aluminum Stairways.
c. Float Switch Supports
d. Lifting Eyes.
e. Pipe Supports.
f. Steel Bases and Anchors.
g. Weir Plates.

C. Anchors, Fasteners, and Fittings: Provide stainless steel for steel fabrications, and stainless steel for aluminum and stainless steel fabrications.

D. Pipe Sleeves
1. Provide as follows:
a. Hot-dip galvanized, Schedule 40 steel pipe sleeves where shown for piping passing through concrete or masonry.
b. Holes drilled with rotary drill may be provided in lieu of sleeves in existing walls.
c. Provide a center flange for water stoppage on sleeves in exterior or water-bearing walls.
d. Provide a rubber caulking sealant or a modular mechanical unit to form a watertight seal in the annular space between pipes and sleeves.

PART 3 - EXECUTION

3.1 FABRICATION

A. General:
1. Exposed Surfaces Finish: Smooth, sharp, well-defined lines.
2. Provide necessary rabbets, lugs, and brackets so work can be assembled in neat, substantial manner.
3. Conceal fastenings where practical.
4. Drill metalwork and countersink holes as required for attaching hardware or other materials.
5. Fabricate materials as specified.
6. Weld connections, except where bolting is directed.
7. Methods of fabrication not otherwise specified or shown shall be adequate for stress and as approved.
8. Grind exposed edges of welds smooth on walkways, guardrails, handrails, stairways, channel door frames, steel column bases and where shown.
9. Round sharp edges to 1/8-inch minimum radius. Grind burrs, jagged edges, and surface defects smooth.

B. Aluminum:
1. Fabricate as shown, and in accordance with the Aluminum Association Standards and manufacturer's recommendations as approved.
2. Grind smooth sheared edges exposed in finished work.

3.2 WELDING

A. General
   1. Meet codes for Arc and Gas Welding in Building Construction of the AWS and AISC for techniques of welding employed, appearance, quality of welds made, and the methods of correcting defective work.
   2. Welding Surfaces: Free from loose scale, rust, grease, paint, and other foreign material, except mill scale which will withstand vigorous wire brushing may remain.
   3. A light film of linseed oil may likewise be disregarded.
   4. Do not weld when temperature of base metal is lower than zero degrees F.
   5. Finished members shall be true to line and free from twists.
   6. Prepare welds and adjacent areas such that there is:
      a. No undercutting or reverse ridges on the weld bead.
      b. No weld spatter on or adjacent to the weld or any other area to be painted.
      c. No sharp peaks or ridges along the weld bead.
   7. Grind embedded pieces of electrode or wire flush with adjacent surface of weld bead.

B. Welding Operators: As specified in PART 1, Article 1.3 QUALITY ASSURANCE.

3.3 INSTALLATION

A. Set units accurately in location, alignment, and elevation, level, plumb, true, and square, measured from established lines and levels. Brace or anchor temporarily in formwork where units are to be built into concrete, masonry, or similar construction.

B. Anchor securely as shown or as required for the intended use, using concealed anchors wherever possible.

C. Fit exposed edges accurately together to form tight, hairline joints. Do not weld, cut, or abrade the surfaces of galvanized or anodized units and are intended for bolted or screwed connections.

D. Field Welding: Where field welding is necessary, grind joints smooth and touch-up the shop paint. Comply with the applicable provisions of AWS D1.1 for the procedures of manual shielded metal-arc welding, the appearance and quality of welds made, and the methods used in correcting welding.

E. Field Coat all miscellaneous ferrous and steel metals per Specification Section 09900, System 300.

F. Where aluminum is in contact with dissimilar metals, or embedded in masonry or concrete, protect surfaces as specified in Section PAINTING, System 305.

+ + END OF SECTION + +

SECTION 05611

NON-WELDED ALUMINUM HANDRAILS AND RAILINGS

PART 1 - GENERAL

1.1 SCOPE

A. This section covers the supply and installation of mechanical non-welded aluminum handrails and railings.

1.2 SUBMITTALS

A. Shop Drawings: Submit Shop Drawings for the fabrication and erection of the handrails and guard rails. Include plans, elevations and details of sections and connections. Clearly show all field connections. Show anchorage and accessory items.

B. Product Data: Submit copies of manufacturer's specifications, dimensions, anchor details, and installation instructions for manufactured products.

1.3 QUALITY ASSURANCE

A. Reference Standards:
   1. Aluminum Association (AA)
      a. Aluminum Standards and Data
      b. Specifications for Aluminum Structures

B. Design Criteria:
   1. Fabricate units to support a live load of 50 pounds per linear foot and a non-concurrent load of 200 pounds at the top of the railing, in any direction.
   2. Expansion/Contraction:
      a. Provide linear expansion joints at a maximum spacing of 24'-0" designed for ¼" expansion and ¼" contraction.
      b. Provide expansion joints in handrail and railing systems where systems cross expansion joints in structure.

C. Allowable Tolerances:
   1. Limit variation of cast-in-place inserts, sleeves and field-drilled anchor and fastener holes to the following:
      a. Spacing: ±3/8-inch.
      b. Alignment: ±1/4-inch.
      c. Plumbness: ±1/8-inch.
   2. Minimum Handrails and Railings Systems Plumb Criteria:
      a. Limit variation of completed handrail and railing system alignment to 1/4-inch in 12' – 0" with posts set plumb to within 1/16-inch in 3 foot - 0 inches.
      b. Align rails so variations from level for horizontal members and from parallel with rake of stairs and ramps for sloping members do not exceed 1/4-inch in 12' - 0 inches.

D. Obtain all handrails and railings systems components and accessories from the same manufacturer.

1.4 DELIVERY, STORAGE AND HANDLING

A. Protect aluminum work from abuse, staining, or damage during shipment, storage, erection and installation.

B. Store in a manner to prevent warping of materials.

PART 2 - PRODUCTS

2.1 GENERAL

A. Fabricate aluminum to conform to AA standards

2.2 MANUFACTURERS AND PRODUCTS

A. Golden Railings, Inc.; TCF Bolted System

B. Superior Aluminum Products; Series 800 Pipe Railing.

C. Or Equal.

2.3 MATERIALS

A. Rails and Posts
   1. Conform to ASTM B221.
   2. 1-1/2" nominal diameter
   3. Provide Schedule 40 pipe minimum for rails and Schedule 80 pipe minimum for posts, unless conditions of detail and fabrication require heavier pipe weights to comply with performance criteria specified.
   4. All rail, posts and components shall be Aluminum Alloy 6005-T5 or 6063-T6.
   5. Clear satin anodized finish, 0.7 mil minimum (AA-M10-C22-A41).

B. Fittings and Accessories
   1. Provide mechanical fittings to join rail and post components, using bolted connections.
   2. Provide floor flanges where indicated
   3. Provide wall brackets with 2-inch minimum clearance between handrail and finished wall surface and as indicated for ladder rails.
   4. Fasteners and anchors shall be Type 304 stainless steel and of type as required by substrate

C. Toeboard (Kick Plate)
   1. Extruded, beveled aluminum 4-inch height, aluminum alloy 6063-T6.
   2. Furnish required stainless steel clamps and fasteners for complete installation.

D. Weep Holes:
   1. Fabricate joints, which will be exposed to the weather so as to exclude water.
   2. Provide 15/64-inch diameter weep holes at the lowest possible point on all handrail and railing systems posts.
   3. Provide pressure relief holes at closed ends of handrail and railing systems.

PART 3 - EXECUTION

3.1 GENERAL

A. Conform to applicable AA standards.

B. Bituminous Coating:
   1. Protect aluminum in contact with other metals, grout and concrete by a heavy brush coat of alkali-resistant bituminous coating or a non-porous tape or gasket.
   2. Coating is not required for aluminum in contact with stainless steel bolts.
   3. Apply bituminous coating at 15-mil minimum dry film thickness.
   4. Manufacturer/Product:
      a. Glidden – Glid Guard 61776
      b. Kop Coat – Bitumastic No. 50
      c. Porter – Tarmastic 100
      d. Tnemec – Heavy Duty 46-450
      e. Henry – HE101 Non-Fibered Foundation Coating
      f. Or Equal.

3.2 INSTALLATION

A. Space posts at a maximum of 6’-0” on center, except when a different spacing is indicated on the Drawings.

B. Install toe boards (kick plates) and anchor to each post with clamps and bolts. Allow 1/4-inch space between bottom of toe board and top of floor surface.

C. Install handrail to walls with brackets spaced not greater than 5’-0” on center, except where otherwise indicated.
   1. For connecting to concrete walls, use anchors as indicated.
   2. For connecting to hollow masonry walls, use toggle bolts having square heads.

D. Cleaning: Clean all aluminum surfaces, after installation, free of smudges, stains, or other deleterious substances.

+ + END OF SECTION + +

SECTION 05620

GRATING AND CHECKERED PLATE

PART 1 - GENERAL

1.1 SCOPE

A. Furnish all materials, labor and equipment required to provide all gratings and floor plates in accordance with the Contract Documents.

1.2 SUBMITTALS

A. Shop Drawings: Submit Shop Drawings for the fabrication and erection of all gratings and checkered plate specified herein. Include plans, elevations and details of sections and connections.

B. Setting drawings and templates for location and installation of anchorage devices.

PART 2 - PRODUCTS

2.1 GENERAL

A. Grating, including support frames, fastenings and all necessary appurtenances for a complete installation shall be furnished as indicated on the Drawings.

B. All exposed bearing ends of grating shall be enclosed in a perimeter band of the same dimensions and material as the main bars, including ends at all cutouts.

C. Grating shall be fabricated into easily removable sections and shall be fastened at each corner and as required with fasteners provided by the grating manufacturer. No fasteners shall be permitted to project above the walking surface.

D. Grating and Checkered Plate shall be designed for a loading of 150 psf, with a maximum deflection of L/360, unless otherwise required by the Drawings.

E. Minimum grating depth shall be as shown on the drawings. Space bearing bars at 1-3/16 inch center to center. Band all edges with minimum 3/16 inch thick banding bar.

F. Openings in Grating:
   1. Cut gratings for penetrations as indicated. Layout grating units to allow grating removal without disturbing items penetrating grating.
   2. At openings, notches, and cuts in grating, provide banding of same material and size as bearing bars, unless otherwise indicated. Weld band to each bearing bar.

G. Notching of bearing bars at supports to maintain elevations will not be permitted.

2.2 ALUMINUM GRATING

A. I-bar type consisting of extruded bearing bars positioned and locked by cross bars.

B. Material:
   1. All supports, cross members, etc. shall be aluminum.
   2. Bearing Bars: Alloy 6061-T6 or Alloy 6063-T6, conforming to ASTM B221
   3. Cross Bars or Bent Connecting Bars: Alloy conforming to either ASTM B221 or ASTM B210.

C. Plank clips for grating hold-downs or other required attachments shall be aluminum or Type 304 stainless steel.

D. Bolts shall be stainless steel.

E. Manufacturer/Product:
   1. Klemp Corporation, "I-Bar"
   2. Borden Metal Products, "Swage Locked Grating"
   3. Ohio Grating, "I-Bar 19SGI4"
   4. Or Equal.

2.3 GALVANIZED STEEL GRATING

A. Weld forged rectangular design (spaced approximately 1-3/16 x 4 inches on center)

B. Grating Size and Design:
   1. Main bars to be 3/16 inches thick.
   2. Depth as indicated on the drawings.
   3. Cross bars to be twisted square steel and resistance welded at right angles to the main bars.
   4. No notching or cutting of bearing bars before welding is permissible.

C. Material:
   1. Galvanized steel: ASTM A36, hot dipped galvanized per ASTM A123 after fabrication

D. Manufacturer/Product:
   1. Seidelhuber No. 19W4
   2. Harsco Industrial IKG, Weld Forged Type "WB"
   3. Or Equal.

2.4 CHECKERED PLATE

A. Minimum thickness: As shown on the drawings

B. Material:
   1. Plate to conform to ASTM B209 with anodized finish.
   2. Stainless steel support angles: Type 316 unless otherwise shown.

C. Raised Pattern Floor Plate: Provide pattern standard with the manufacturer to provide non-slip surface.

D. Plates shall be stiffened by angles welded to the underside as shown on the drawings.

E. Lifting Handles:
   1. Each checkered plate shall be provided with four lifting handles, as shown on the drawings.

F. Maximum weight of each checkered plate shall be 150 pounds.

PART 3 - EXECUTION

3.1 FABRICATION

A. All measurements and dimensions shall be based on field conditions and shall be verified by the CONTRACTOR prior to fabrication. Such verification shall include coordination with adjacent work.

B. All fabricated work shall be shop-fitted together as much as practicable, and delivered to the field, complete and ready for installation. All miscellaneous items such as stiffeners, fillets, connections, brackets and other details necessary for a complete installation shall be provided.

C. All work shall be fabricated and installed in a manner that will provide for expansion and contraction, prevent shearing of bolts, screws, and other fastenings, ensure rigidity, and provide a close fit of sections.

D. Finished members shall conform to the lines, angles and curves shown on the Drawings and shall be free from distortions of any kind.

E. All shearings shall be neat and accurate, with parts exposed to view neatly finished. Flame cutting is allowed only when performed utilizing a machine.

F. All shop connections shall be welded unless otherwise indicated on the Drawings or specified herein. All fastenings shall be concealed where practicable.

3.2 INSTALLATION

A. Assembly and installation of fabricated system components shall be performed in strict accordance with manufacturer's recommendations.

B. All gratings shall be erected square, plumb and true, accurately fitted, adequately anchored in place, and set a proper elevations and positions.

+ + END OF SECTION + +

DIVISION 6

(NOT USED)

DIVISION 7

(NOT USED)

DIVISION 8

(NOT USED)

DIVISION 9

SECTION 09900

PAINTING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope: Provide and install coatings on all exposed surfaces as indicated herein, in other Specification Sections, and on the Drawings.

1.2 QUALITY ASSURANCE

A. Experience: Both Coatings Manufacturer and Coatings Installer shall have a minimum 5 years' experience in production and application, respectively, of specified products. Coatings Installer shall be approved and endorsed, in writing, by Coatings Manufacturer.

B. Regulations: Meet federal, state, and local requirements which apply to the work, including, but not limited to those regulations limiting the emission of volatile organic compounds.

C. Coatings Manufacturer Recommendations: Coatings Installer shall follow all recommendations of the Coatings Manufacturer regarding storage, handling, surface preparation, application of coatings, recoat times, environmental conditions during storage, preparation and application of coatings, and all other Coatings Manufacturer recommendations.

D. Warranty: Both Coatings Manufacturer and Coatings Installer shall provide a 1-year complete replacement warranty for all coatings. Manufacturer shall provide 5-year warranty for long-term performance of coatings in addition to 1-year warranty.

1.3 SUBMITTALS

A. Shop Drawings: Coatings Manufacturer shall submit for approval the following:
   1. Copies of Manufacturer's technical information and application instructions for each material proposed for use. Specify exactly which product is being proposed for each coating type (as specified below). This may be accomplished through a reference table along with information on the various products, or by a separate, tabbed section with information on products being submitted for each system in a separate tab of a binder. Submittal of general Manufacturer's literature without detailing which product is proposed for each paint system will be unacceptable.
   2. Copies of Manufacturer's complete color charts for each coating system.
   3. Letter from the Coatings Manufacturer approving and endorsing Coatings Installer.
   4. Furnish copies of the final, approved submittal to the Coatings Installer so that it is clear which product is to be used for which each system.

B. Reference Samples:
   1. Provide reference samples of paint colors and textures as required by the ENGINEER. Reference samples will show the color and texture of the final paint to be applied and shall be approved by the ENGINEER prior to painting. Reference samples should be applied to similar substrates to the final surfaces to be painted. If ENGINEER chooses to forego reference samples, CONTRACTOR must receive the allowance to forego

reference samples before painting begins or all painted surfaces will be re-painted at the ENGINEER's discretion and at no additional cost to the OWNER.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Protection: Protect all pre-coated items from coating damage during shipping.

B. Store products in accordance with Manufacturer's directions.

C. Store products in a neat, orderly fashion. Protect products from damage. Protect storage area from damage from stored products.

PART 2 - PRODUCTS

2.1 PRODUCT AND MANUFACTURER:

A. Provide coating types as listed in the following table. The systems referenced in the table are those provided by Tnemec. Sherwin-Williams, or Equal are also acceptable manufacturers. If manufacturers other than Tnemec are desired, the CONTRACTOR shall submit equivalent paint systems.

COATING TYPE	DESCRIPTION	TNEMEC SERIES
Clear Polyamine Epoxy	Clear Polyamine Epoxy, high solids, moisture resistant, designed as a one-coat wood sealer.	Series 201, Epoxoprime
Acrylic Filler	Waterborne Cementitious Acrylic designed for application on porous surfaces such as rough-faced concrete masonry units	Series 130, Envirofill
Acrylic Latex	Single component, finish as required	N/A
Latex Primer/ Sealer	Waterborne vinyl acrylic primer/sealer for interior gypsum wallboard/plaster. Capable of providing uniform seal and suitable for use with specified finish coats.	N/A
Polyamine Epoxy	Waterborne Polyamine Epoxy, penetrating, flexible and low-odor primer designed for sealing porous substrates.	Series 151, Elasto-Grip FC
Acrylate	Modified Waterborne Acrylate designed for application on porous surfaces such as rough-faced concrete masonry units or wood surfaces. Flexible and breathable, moisture and UV resistant. Matte Finish	Series 156, Enviro-crete
Polyamidoamine Epoxy	Polyamidoamine Epoxy designed for use on steel or other ferrous metals	Series N69, Hi-Build Epoxoline II
Polyurethane	Aliphatic Acrylic Polyurethane designed for exterior weathering, abrasion and corrosion resistance	Series 73, Endura-Shield
Silicone Sealant	Silane/Siloxane penetrating water repellent blend designed for application on above-grade concrete, stucco, block, masonry and stone surfaces	Series 636, Dur A Pell 20

2.2 COLOR

A. Color Pigments: Pure, nonfading, lead-free applicable types to suit the substrates and service indicated.

B. Provide colors as described in the drawings or specifications, or as selected by ENGINEER from standard color palette. For piping system colors, reference pipe schedule.

C. Where existing colors are to be matched or satisfactory color is not available from standard color palette, provide custom-mixed colors.

D. Provide samples of each color on the substrate to be coated for approval by the ENGINEER prior to beginning coating application.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

A. Coatings Installer shall prepare all surfaces to be painted in strict accordance with Coatings Manufacturer's recommendations.

B. Coatings Manufacturer representative shall observe Coatings Installer's methods of preparing surfaces and approve of the work prior to Coatings Installer beginning coating installation. If, after a period of time, Coatings Manufacturer is satisfied with Coatings Installers methods, Coatings Manufacturer can allow Coatings Installer to proceed without inspection following surface preparation. Coatings Manufacturer and installer will still both be held equally accountable for any coatings failure.

3.2 PROTECTION

A. Protect all adjacent surfaces from overspray, dripping or other transfer of coatings not intended for those surfaces. Use masking, tape, drop cloths, plastic and other protective materials as appropriate.
   1. Remove, mask, or otherwise protect hardware, lighting fixtures, switchplates, aluminum surfaces, stainless steel surfaces, machined surfaces, couplings, shafts, bearings, nameplates on machinery, and other surfaces not intended to be painted.
   2. Protect working parts of mechanical and electrical equipment from damage during surface preparation and painting process. Mask openings in motors, fan housings, etc. to prevent coatings from falling inside.
   3. Correct all damages by cleaning, repairing or replacing, and repainting, as acceptable to ENGINEER.

B. Completely remove all masking, tape, drop cloths, plastic and other protective materials within 48 hours of completion of application of finish coat. Take special care to remove masking and plastic which cover tank vent openings, HVAC registers, vents, motor vents, and other areas where airflow is critical to proper operation.

3.3 APPLICATION

A. Paint all exposed surfaces not specifically excluded in 3.3.C, below. Provide and install Coatings in accordance with the following Table, unless otherwise specified in other Sections:

COATING SYSTEM NO.	SURFACE TO BE COATED	PRIMER COATING	NO OF PRIMER COATS	PRIME COAT THICKNESS (EACH COAT)	FINISH COATING	NO OF FINISH COATS	FINISH COAT THICKNESS (EACH COAT)
100	Concrete Masonry Units	Acrylic Filler	1	70 SF/Gal Application Rate	Acrylate	2	135 SF/Gal Application Rate
101	Concrete Roof Slab (Exterior)	Silicone Sealant	1	250 SF/Gal Application Rate	None		
200	Wood (Interior and Exterior)	Polyamine Epoxy	1	250 SF/Gal Application Rate	Acrylate	2	135 SF/Gal Application Rate
201	Wood (Interior, where noted)	No primer			Clear Polyamine Epoxy	1	350 SF/Gal Application Rate
202	Gypsum Board (Interior)	Latex Primer/Sealer	1	350 SF/Gal Application Rate	Acrylic Latex (Semigloss)	2	400 SF/Gal Application Rate
300	Exposed Ferrous Pipe Systems and Exposed Steel Items	Polyamidoamine Epoxy	2	4-6 MDFT	Polyurethane	1	2-3 MDFT
301	Exposed, Non-metallic Pipe Systems	Polyamidoamine Epoxy	1	350 SF/Gal Application Rate	Polyurethane	1	350 SF/Gal Application Rate
302	Immersed Ferrous Pipe Systems and Steel Items	Polyamidoamine Epoxy	1	4-6 MDFT	Polyamidoamine Epoxy	1	4-6 MDFT
303	Immersed Non-metallic Pipe Systems	Polyamidoamine Epoxy	1	350 SF/Gal Application Rate	Polyamidoamine Epoxy	1	350 SF/Gal Application Rate
304	Buried Ferrous Pipe and Steel Items	Polyamidoamine Epoxy	1	8-10 MDFT	Polyamidoamine Epoxy	1	8-10 MDFT

COATING SYSTEM NO.	SURFACE TO BE COATED	PRIMER COATING	NO OF PRIMER COATS	PRIME COAT THICKNESS (EACH COAT)	FINISH COATING	NO OF FINISH COATS	FINISH COAT THICKNESS (EACH COAT)
305	Aluminum Surfaces in Contact with Concrete	Polyamidoamine Epoxy	1	4-6 MDFT	None		
	Steel Tank	Per 09871, Coating of Steel Water Storage Tank					
	Pumps	Touch up factory applied coatings, per Pump Specifications					

B. Items Delivered with Factory Applied Primer:
   1. For items delivered with a factory applied primer and requiring painting under this Section, the factory applied primer may be used in lieu of field applied primer only under the following conditions:
      a. The ENGINEER approves the use of the factory applied primer in lieu of field applied primer.
      b. The factory applied primer is certified by the Coatings Manufacturer as compatible with the field applied finish coat.
      c. The Coatings Manufacturer's recommended recoat time for the factory applied primer has not been exceeded.
   2. If all of the above conditions are not met, the Coatings Installer shall re-prepare all surfaces to be painted in strict accordance with Coatings Manufacturer's recommendations and primer applied, in accordance with this Section.

C. Table Definitions:
   1. SF/Gal: Square foot of coverage per gallon of coating used.
   2. MDFT: mil dry film thickness
   3. mil: 1/1000 of an inch paint thickness
   4. Ferrous Pipe: Includes Ductile Iron, Cast Iron, Steel, and Galvanized Steel piping
   5. Steel Items: Includes steel and galvanized steel items such as structural steel, doors, window frames, overhead coiling doors, bollard posts, steel gates, steel fences, and all other steel and galvanized steel items.
   6. Non-Metallic Pipe: Polyvinyl Chloride, Chlorinated Polyvinyl Chloride, Fiberglass Reinforced Plastic, High Density Polyethylene
   7. Exposed: Located above grade, exposed to the atmosphere not submerged. Includes surfaces inside and outside of buildings.
   8. Submerged: In an area which normally is under water or other liquid or is intermittently under water or other liquid.
   9. Buried: Located below grade, surrounded by backfill.

D. Surfaces Not Requiring Painting:
   1. Unless otherwise stated or shown below or in other sections, the following areas or items will not require painting or coating:
      a. Concrete surfaces.
      b. Reinforcing steel.
      c. Copper, bronze, brass, Monel, aluminum, chromium plate, and stainless steel surfaces, except where:
         1) Required for electrical insulation between dissimilar metals.
         2) Aluminum and stainless steel are embedded in concrete or masonry, or aluminum is in contact with concrete or masonry.
         3) Color coding of equipment and piping is required.

d. Pipe unions or portions of piping systems where painting would make disassembly difficult or impossible.
e. Prefinished electrical, mechanical and architectural items such as motor control centers, switchboards, switchgear, panelboards, transformers, disconnect switches, HVAC equipment enclosures, ductwork, acoustical tile, cabinets, louvers, and wall panels.
f. Electrical conduits.
g. Cathodic protection anodes.
h. Insulated piping and insulated piping with jacket will require prime coat only.
i. Fiberglass reinforced plastic (FRP) surfaces with an integral ultra-violet resistant colored gel coat do not require painting, provided the color is as selected.
j. Glass, plexiglass or other transparent or translucent material intended to allow passage of light.
k. Civil/site materials such as asphalt, gravel, rock, chain-link fence, and plantings.

3.4 RECOAT TIMES:

A. Coatings Installer shall observe all requirements of the Coatings Manufacturer regarding recoat times.

3.5 PAINT LOG

A. Coatings Installer shall keep a paint log
1. Specific details of the contents and format paint log shall be determined by the Coatings Installer and approved by the ENGINEER.
2. At a minimum, paint log shall record, on a daily basis for any day when coating work is performed:
a. Weather conditions, including 3-day forecast
b. Which surfaces were prepared for coating
c. Approval of surface preparation by the Coatings Manufacturer representative
d. Which surfaces or systems were coated that day
e. Who the installer was (specific names of persons on crew)
f. Which coating type was used
g. Which coat was installed
h. What the application rate or MDFT was (as approved by ENGINEER)
3. Paint log shall be kept on-site. Paint log shall be signed on a daily basis, for any day when coating work is performed, by the supervisor of the coatings installer field crew and by the ENGINEER.
4. Any painted surface which was not recorded in the paint log shall be stripped, re-prepared, and recoated at the ENGINEER's discretion.

3.6 WARRANTY INSPECTION

A. Warranty inspection shall be conducted during the eleventh month following completion of the Work. All defective Work shall be repaired by the CONTRACTOR in accordance with this Specification and to the satisfaction of the ENGINEER and at the CONTRACTOR'S expense.

B. Any location where paint has peeled, bubbled, or cracked and any location where rusting is evident shall be considered to be a failure of the system. The CONTRACTOR shall make repair at all points where failures are observed by removing the deteriorated paint, cleaning the surface, and recoating or repainting with the same system. If the area of failure exceeds 25 percent of the total coated or painted surface, the entire coating or

paint system may be required to be removed and repainted in accordance with this specification as determined by the ENGINEER.

C. All costs for CONTRACTOR'S inspection, Manufacturer's inspection and all costs for repair shall be borne by the CONTRACTOR.

+ + END OF SECTION + +

DIVISION 10

SECTION 10400

IDENTIFICATION DEVICES

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope: Furnish and install signs, placards, and labels for safety equipment, hazards, and equipment and piping identification.

1.2 SUBMITTALS

A. Shop Drawings:
   1. Provide manufacturer's literature showing available letter sizes and styles, standard and custom colors, and standard mounting details.
   2. Provide drawings showing layouts, actual letter sizes and styles, colors, and project-specific mounting details.

PART 2 - PRODUCTS

2.1 FIRE EXTINGUISHER LOCATION SIGNS

A. Material:
   1. Subsurface silkscreened graphics on a transparent acrylic sheet, 0.08" thick with Helvetica Medium alphabet and matching arrows type face.
   2. Provide 2" high upper case letters and 1" high lower case letters.

B. Fire Extinguisher Identification Sign:
   1. Provide 15"x 15" with 1" radiused corners, unframed.
   2. Provide one for each surface mounted fire extinguisher.
   3. Background color shall be red with white lettering.
   4. Signs shall incorporate a white directional arrow as located by ENGINEER.

C. Product and Manufacturer: Provide one of the following:
   1. ASI/SPE MH (Four Corners) Plaque by ASI Sign Systems, Incorporated.
   2. Or equal.

2.2 FIRE PROTECTION PLACARDS

A. Fire Protection Placards:
   1. Provide diamond-shaped placards: 15" square of 0.125" rigid polyethylene.
   2. The placard shall meet NFPA 704.

B. Product and Manufacturer: Provide one of the following:
   1. W.H. Brady Company
   2. Seton Name Plate Company
   3. Or Equal

2.3 MISCELLANEOUS SAFETY SIGNAGE

A. Safety signs shall comply with the following standards:
   1. Occupational Safety and Health Administration (OSHA), Standards for General Industry, Subparts 1910.200 Hazard Communication (July, 1986).
   2. National Fire Protection Association (NFPA) Standard No. 704 - Label System.
   3. Uniform Fire Code, Latest Edition.
   4. Uniform Fire Code Standard 79-3.

B. Safety signs shall be of height and width required by layout and shall be formed from semi-rigid butyrate, polyethylene or fiberglass. Lettering shall be 3-inches high and 1/2-inch in stroke.

C. Provide the following safety signs:

DRAWING REFERENCE NUMBER	TEXT	BACKGROUND COLOR	LETTERING COLOR
M-102	CAUTION: EQUIPMENT STARTS AUTOMATICALLY	Yellow	Black
M-102	DANGER: HIGH VOLTAGE	Yellow	Black
M-102	CAUTION: NON-POTABLE WATER DO NOT DRINK	Yellow	Black

2.4 EXIT SIGNS

A. Material: Plastic, 1/8-inch minimum thickness.

B. Lettering: 6 inches high, 3/4-inch stroke, white letters on red background.

2.5 IDENTIFICATION LABELS

A. Pipe Labels and Flow Direction Arrows:
   1. Label, Lettering Color, Size and Placement: In accordance with ANSI A13.1, and as listed below.
   2. Label Colors:

Fluid Service	**Background Color**	**Letter Color**
Fire quenching fluids	Safety red	White
Toxic and corrosive fluids	Safety orange	Black
Flammable fluids	Safety yellow	Black
Combustible fluids	Safety brown	White
Potable, cooling, boiler feed, and other water	Safety green	White
Compressed air	Safety blue	White

   3. Label Size:

Outside Diameter of Pipe Covering, inches	**Length of Color Field, inches**	**Size of Letters, inches**

3/4 to 1-1/4	8	½
1-1/2 to 2	8	3/4
2-1/2 to 6	12	1-1/4
8 to 10	24	2-1/2
Over 10	32	3-1/2

4. Label Placement:
   a. Labels shall be positioned on the pipes so they can be easily read. Proper label placement is on the lower side of the pipe if the employee has to look up to the pipe, on the upper side of the pipe if the employee has to look down towards the pipe, or directly facing the employee if on the same level as the pipe. Labels should be located near valves, branches, where a change in direction occurs, on entry/re-entry points through walls or floors, and on straight segments with spacing between labels that allows for easy identification.
5. Material: Manufacture from or encase in outdoor grade plastic or vinyl that will resist damage or fading from washdown, sunlight, mildly corrosive atmosphere, dirt, grease, and abrasion.
6. Message: See Piping Schedule.
7. Labels:
   a. Snap-Around Type: Size for finished outside diameter of pipe and insulation.
   b. For 6 Inches and Over Diameter Pipe: May furnish strap-on type fastened without use of tools with plastic or stainless steel straps.
   c. Firmly grip pipe so labels remain fixed in vertical pipe runs.
8. Manufacturers and Products:
   a. T & B/Westline, Rariton, NJ, Model WSS Snap-Around.
   b. Seton Name Plate Corp., New Haven, CT, Setmark Series.
   c. Or equal.

B. Equipment Labels:
1. Applies to equipment with assigned tag numbers wherever specified.
2. Lettering: Black bold face, 3/4-inch minimum high.
3. Background: OSHA safety yellow.
4. Materials: Either of the following:
   a. Aluminum or stainless steel base with a baked-on finish that is suitable for use on wet, oily, exposed, abrasive, and corrosive areas.
   b. Fiberglass with fiberglass-encased lettering.
5. Furnish 1-inch margin on each end of label for mounting. On fiberglass labels furnish grommets at each end for mounting.
6. Size:
   a. As appropriate for lettering provided.
   b. Provide same-size labels for equipment series which are adjacent.
7. Message: Equipment names and tag numbers as used in Sections where equipment is specified and/or on Drawings.
8. Manufacturers and Products:
   a. T & B/Westline Co., Rariton, NJ; Type KQ.
   b. Seton Name Plate Corp., New Haven, CT; Style EB.
   c. Or equal.

PART 3 - EXECUTION

3.1 INSTALLATION OF SIGNS

A. Install Fire Extinguisher location signs at all fire extinguisher locations, approximately 12" above fire extinguisher mounting bracket.

B. Install Exit Signs mounted to each door which leads to the outside of the building, on the panic bar side of the door, mounted to the door approximately 5'-6" above finished floor.

C. Install all other signs at locations as shown on the drawings. Signs should be installed approximately 5'-6" off of finished floor, attached to doors where appropriate. Where two signs are indicated in the same location, signs should be mounted side-by-side, where possible.

D. Install all signs plumb and level. They shall be attached with four stainless steel screws or anchor bolts as required for substrate. Provide theft/tamper-resistant fasteners on all signs.

3.2 INSTALLATION OF PIPE IDENTIFICATION LABELS

A. Provide pipe identification label with flow arrows on all exposed piping systems as follows:
   1. At all connections to equipment, valves, tees or wall penetrations.
   2. At intervals along piping not greater than 18 feet on center with at least one label applied to each exposed horizontal and vertical run of pipe.

B. Install pipe identification labels after all painting has been completed.

3.3 INSTALLATION OF EQUIPMENT IDENTIFICATION LABELS

A. Install equipment identification labels on all equipment which has been given an equipment number in the Drawings or Specifications. Provide identification label which includes equipment name and tag number.

B. Where no damage will be caused to equipment, mount equipment identification label directly to equipment. Otherwise, mount equipment identification labels to concrete equipment base or wall space. Install equipment identification label such that it is clear which piece of equipment is being labeled.

C. Anchor to equipment or base for easy removal and replacement with ordinary hand tools.

+ + END OF SECTION + +

DIVISION 11

SECTION 11602

SCREENINGS REMOVAL SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:
   1. Provide all labor, materials, equipment and incidentals as shown on the Drawings, specified and required to furnish and install a screenings removal system that is complete and operational as shown on the Drawings and as specified.
   2. Furnish the following:
      a. Screenings wash conveyor and dewatering press.
      b. Screenings discharge chute
      c. Drive assemblies
      d. Spray wash system
      e. Local control panel
      f. Anchorage devices
      g. Instrumentation and controls as specified
      h. Hinged covers
      i. Screenings discharge chute with bagger

B. The mechanical, structural, instrumentation, and electrical design have been based on a screening removal system manufactured by Vulcan. The cost of any changes and modifications to mechanical, structural, instrumentation, or electrical facilities necessary to adapt alternate equipment to the layout and design shown shall be borne by CONTRACTOR. Clearances shown on the Drawings shall be maintained. Any such proposed changes or modifications are subject to review and acceptance of the ENGINEER in accordance with the Special Provisions.

1.2 QUALITY ASSURANCE

A. Manufacturer's Qualifications:
   1. Manufacturer shall have a minimum of five years experience of producing substantially similar equipment, and shall be able to show evidence of at least five installations in satisfactory operation for at least five years.

B. Component Supply and Compatibility:
   1. Obtain all equipment included in this Section regardless of the component manufacturer from a single screenings removal equipment manufacturer.
   2. Screenings removal equipment manufacturer shall review and approve or shall prepare all Shop Drawings and other submittals for all components furnished under this Section.
   3. All components shall be specifically designed for control of wastewater service and shall be integrated into the overall equipment design by the screenings removal equipment manufacturer.

C. Reference Standards: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
   1. ANSI, American National Standards Institute.
   2. IEEE, Institute of Electrical and Electronic Engineers.
   3. National Electrical Code (NEC) current adoption.
   4. NEMA, National Electrical Manufacturers Association.
   5. AFBMA, Anti-Friction Bearing Manufacturer's Association.
   6. AGMA, American Gear Manufacturers Association.
   7. ASTM A 269, Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
   8. ASTM A 276, Specification for Stainless and Heat-Resisting Steel Bars and Shapes.
   9. ASTM A 403, Specification for Wrought Austenitic Stainless Steel Piping.
   10. ASTM A 666, Specification for Austenitic Stainless Steel, Sheet, Strip, Plate, and Flat Bar for Structural Applications.
   11. AWS A2.4, Symbols for Welding and Non-Destructive Testing.
   12. AWS D1.1, Structural Welding Code - Steel.
   13. American Institute of Steel Construction.
   14. ISA, The Instrumentation, Systems and Automation Society.

1.3 SUBMITTALS

A. Shop Drawings: Submit for approval the following:
   1. Manufacturer's literature, illustrations, specifications and engineering data including: materials, dimensions, weights, performance data and part lists for all components furnished.
   2. Control panels and instruments shall be furnished in accordance with the requirements as shown on the Drawings, and as specified. This includes panel wiring drawings, hardware submittals, circuit breakers, motor starters, and other electrical devices furnished.
   3. Drawings showing fabrication methods, assembly, accessories, installation details and wiring diagrams.
   4. Setting drawings, templates, and directions for the installation of anchor bolts and other anchorages.
   5. Deviations from the Contract Documents.

B. Field Test Results:
   1. Submit a written report giving the results of the field tests required.

C. Operation and Maintenance Manuals:
   1. Submit complete installation, operation and maintenance manuals including, test reports, maintenance data and schedules, description of operation, and spare parts information.
   2. Furnish Operation and Maintenance Manuals in conformance with the requirements of Section 01330, Submittal Procedures.

D. Lubricant Specification: Furnish a lubricant specification for the type and grade necessary to meet the requirements of the equipment.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the site to ensure uninterrupted progress of the Work. Deliver anchor bolts and anchorage devices, which are to be embedded in cast-in-place concrete, in ample time to prevent delay of the Work.

B. All boxes, crates and packages shall be inspected by CONTRACTOR upon delivery to the site. Notify ENGINEER if any loss or damage exists to equipment or components. Replace loss and repair damage to new condition, in accordance with manufacturer's instructions.

C. Store materials to permit easy access for inspection and identification. Keep all material off the ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from corrosion and deterioration.

PART 2 - PRODUCTS

2.1 DESIGN CRITERIA

A. General:
   1. Screenings shall be washed, transported, compressed and dewatered by a single mechanism. Dewatered screenings shall be transferred to a dumpster for final transport and disposal.
   2. The screening equipment shall provide dewatered screenings capable of passing the EPA Paint Filter Liquid Test as described in Method 9095 of EPA Publication SW-486.

B. Service Conditions:
   1. Quantity:
      a. Number of Washer/Compactors: 1
   2. Material Screened: Raw Commercial/Domestic Sewage.
   3. Washer/Compactor Drive Motor Size: 5 HP.

2.2 DETAILS OF CONSTRUCTION

A. General:
   1. The system shall consist of the following: screen discharge chute, screenings screw conveyor and dewatering press, screenings discharge chute, spray wash system, drive assemblies, screenings bagger, and a local control panel shall be supplied.
   2. Equipment shall be designed and built for intermittent service up to ten starts per hour for moderate shock without overheating, excessive vibration or strain.
   3. Except for the screenings control panel, all drive motors and other electrical equipment shall be rated suitable for Class 1, Division 1, Group D service.

B. Screening Screw Conveyor and Dewatering Press:
   1. Provide an integral dewatering screw to transport and dewater the screened material to a compaction zone and point of discharge. The compaction zone shall be a part of the screenings washer/compactor and discharge chute design. The compaction zone shall return water released from the screened material back to the channel.
   2. The screenings washer/compactor shall be a minimum wall thickness of 1/4-inch.

3. The lower end of the screenings conveyor shall be supported by a sealed, high performance self-lubricated lower bearing. The lower bearing shall take no thrust load from the screw conveyor.
4. Compaction zone housing shall be furnished with a bolted and gasketed access cover as well as a bolted dewatering section panel to allow access to the screw conveyor should the compaction zone ever become plugged.

C. Drive Unit Assemblies:
1. Motors shall be of adequate size so that there is no overload on the motor above rated nameplate horsepower under normal conditions of service, but not less than the horsepower required in the Design Requirements.
2. Motors shall be explosion proof, suitable for NEMA Class 1, Division 1, Group D, service, rated 460 volts suitable for operation on a 480 volt, 60 Hz, 3-phase supply.
3. Motors shall have a 1.15 service factor and shall comply with the latest ANSI, NEMA, and IEEE Standards as minimum.
4. Motors shall have a stainless steel nameplate which shall provide the following: type, frame, insulation, class, HP, full load current, rpm, centigrade degree rise, manufacturers name and serial no., model, voltage, locked rotor kva code, bearing numbers and a connection diagram. The motor terminal box shall be oversized to provide adequate space for connections, constructed of cast iron, and neoprene gasketed and bolted. The motor leads shall be permanently marked in agreement with the connection diagram.
5. Speed reducers shall conform to AGMA 6034-B92 guidelines and specifications for moderate shock, intermittent full load operation with a service factor of 1.15 over the design running load.
6. Speed reducer moving parts shall be immersed in oil, and bearings shall be anti-friction throughout with a minimum B-10 life of 100,000 hours.
7. AGMA Gear Quality: ten or better.
8. Belt or chain driven units are not acceptable.

D. Spray Wash Systems:
1. Three automatic spray wash systems shall be provided for the screen and each shall be constructed of 3/4-inch diameter minimum Type 316 stainless steel piping and flexible reinforced PVC hose with Type 316 stainless steel spray nozzles. Spray wash systems shall be operated on an intermittent basis only. Each spray wash system shall include a ball valve for flow control and an isolation ball valve for flow rate control.
   a. The screenings spray wash systems shall be designed for a flow range of 5 to 30 gal/min at a minimum pressure of 50 psig.
   b. A primary screenings spray wash system shall be provided with a minimum of two spray nozzles located prior to compaction and dewatering.
   c. The dewatering section shall be provided with a flush water header system to ensure complete flushing of the compaction zone.
2. Motorized Ball valves shall be 1-inch minimum, brass body, 2-way steam-type complete with stainless steel insert liner and 120 VAC operation with an explosion-proof Class 1, Division 1, Group D, rating. Ball valves shall be normally closed and rated for up to 120 psig.
3. Isolation ball valves shall be 1-inch minimum stainless steel body with stainless steel ball complete with reinforced Teflon seats and adjustable stop lever.
4. A 1-inch stainless steel body wye-strainer with replaceable stainless steel internals shall be provided for the incoming plant water supply.

E. Screenings Discharge Chutes:
   1. Provide chutes for collecting screenings from screen and discharge from washer/compactor to dumpster as shown on the Drawings.
      a. Minimum 3 mm, ASTM A 167, Type 316 stainless steel.
      b. Openings shall be flanged and bolted.
      c. Rigidly supported following manufacturer's recommendations.
      d. A transition piece shall connect screen chute and washer-filling hopper. Transition piece shall be designed such that only one end must be unbolted to allow for screen and washer rotation/removal.
   2. Washer/compactor system shall have a capacity of 45 cu ft/hr.
   3. Materials:
      a. Steel plate and Shapes: ASTM A 36.
      b. Chutes: ASTM A 167, Type 316 stainless steel.
      d. Drive Shaft: Heat-treated alloy steel AISI, Grade 4150, of uniform diameter.
      e. Wear Liner: UHMW polyethylene. Attached to the trough with Type 316 stainless steel clips, 3/8-inch minimum thickness installed on maximum 12-inch centers and a maximum of 2-inches from the liner top edge. Wear liner bars are not acceptable.
      f. Fasteners: ASTM A 193, Type 316 stainless steel.
   4. Trough and Hopper:
      a. Fabricated from 1/4-inch minimum, ASTM A 167, Type 316 stainless steel.
      b. 2-inch drain tap.
      c. Flange fittings for filling hopper and discharge chute.
      d. Troughs shall conform to the dimensional standards of CEMA 300 and enclosure Classification IIIE.
   5. Bearings:
      a. AFBMA 11-90, high capacity roller bearings located in the reducing drive housing with an L-10 life rating of 100,000 hours.
      b. Designed to support thrust loads and provide angular alignment with the trough.
   6. Seals: Compression packing gland between the drive shaft and sleeve.
   7. Cover:
      a. Bolt cover over trough for portions not covered by a filling chute.
      b. Minimum 12-gauge, ASTM A 167, Type 316 stainless steel.
      c. Gaskets between trough and cover.
      e. Flanged inlets shall be provided for connection with screen discharge chute. Location, size, and configuration of inlets shall be coordinated with screen supplier.
      f. Provide a 5-foot wide hinged section of cover for maintenance access.
   8. Gear Reducing Drive:
      a. Design for full thrust loads from spiral flights.
      b. Bearings: Operating life of L-10 100,000 hours.
      c. AGMA, Class II, reduction helical gears.
      d. Air cooled, no auxiliary cooling allowed.
      e. Close coupled with drive motor.
      f. Applied Torque: Adequate to start the screw conveyor when fully loaded.
   9. Discharge Chute Supports:
      a. Minimum 1/4-inch rectangular ASTM A 36 steel shapes and plates.
      b. Ratio of unbraced length to least radius of gyration shall not exceed 240 for tensile members and 120 for compression members.
      c. Designed to not exceed 1/3 of AISC allowable stresses when loaded to twice the running torque of the motor.

d. Support Loads: Based on completely filled trough, weight of the conveyor, and dynamic loading when operating.
e. Coordinate support locations with facility structure. Supports shall not restrict access to other process systems.

10. Gaskets: Provide neoprene, 50 durometer, 1/8-inch thick gaskets to be located at face for entire top of trough flange and at flanged fittings with drop chutes.
11. Flushing/Drain Connections:
    a. Provide flushing inlets and drain outlet, welded to the trough where shown on the Drawings. Flushing inlets shall be 1-1/2-inch diameter, Type 316L stainless steel, flanged connection. Drain outlet shall be 2-inch diameter, Type 316L, flanged connection.
12. Screenings Collection Bags:
    a. The screening discharge chute shall be furnished with a bagging device to contain and encase dewatered screenings.
    b. The bagging device shall be fabricated of 12 gauge minimum stainless steel. The bagger will retain the bag with a nylon tie down strap.
    c. The screenings bagger shall be designed to be fitted with replaceable plastic bags. The plastic bags shall be designed to be fitted with replaceable polyethylene plastic bags. The plastic bags shall be 22-inches in diameter by 72-inches long and easily reachable by operations staff.

F. Product and Manufacturer: Provide the following:
1. Headworks Screwpactor
2. Vulcan
3. Or Equal

2.3 FABRICATION

A. The equipment manufacturer's shop welds, welding procedures, welders and welding operators shall be qualified and certified in accordance with the requirements of the latest edition of ANSI/AWS D1.1 "Structural Welding Code - Steel" published by the American Welding Society.

B. Fabricate all parts and assemblies from sheets and plates of Type 316 stainless steel sheet with a 2D finish conforming to AISI Type 316 and ASTM A 666, unless noted otherwise. Fabricate all tubular products and fittings to conform to ASTM A 269, A 351 and A 403.

C. All welding in the factory shall be performed using the shielded arc, inert gas, MIG or TIG method. Add filler wire to all welds to provide for a cross section and weld metal equal to or greater than the parent metal. Fully penetrate butt welds to the interior surface and provide gas shielding to interior and exterior of the joint.

D. Field welding of stainless steel will not be permitted.

E. Bolts, nuts and washers shall be AISI Type 316 stainless steel furnished in accordance with ASTM A 193 and A 194.

F. Passivate all stainless steel surfaces by using the following procedure:
1. Wire brush all weld areas to remove weld spatter. Brushes shall be Type 316 stainless steel and used only on Type 316 stainless steel.
2. Bead or pumice blast all external non-wetted stainless steel to a uniform finish.

2.4 CONTROLS

A. General:
   1. Provide automatic and manual control of the Screening system as shown on the Drawings and specified herein via one local control panel interfaced with the screen local control panel.
   2. Washer/compactor shall operate based on rotation signal received from screen local control panel.

B. Operational Description:
   1. Washer/Compactor Cleaning:
      a. When the "HAND/OFF/AUTO" selector switch is in the "AUTO" position, screen cleaning shall be automatically initiated by an adjustable rotation signal received from the screen.
      b. Additionally, the control panel shall allow for adjustable timed operation of the cleaning cycle. This will allow for an adjustment in the amount of cleaning run-time for each rotational signal received by the screen.
      c. When the "HAND/OFF/AUTO" selector switch is in the "HAND" position, cleaning shall be manually initiated by turning a "FORWARD/OFF/REVERSE" selector switch. Switch shall spring back to the "OFF" position when released and cleaning shall stop.
      d. When the "HAND/OFF/AUTO" selector switch is in the "OFF" position, cleaning shall not be initiated by any external signals.
   2. Washwater Ball Valves:
      a. When the "HAND/OFF/AUTO" selector switch is in the "AUTO" position, each valve shall open based upon a preset and adjustable timed interval, relative to the cleaning cycle initiation (prior to, coincident with, or delayed). The valves shall remain open for a preset and adjustable duration.
      b. When the "HAND/OFF/AUTO" selector switch is in the "HAND" position, each valve shall open until turned to the "OFF" position or back to the "AUTO" position.
      c. When the "HAND/OFF/AUTO" selector switch is in the "OFF" position, valves shall not open via plant SCADA.
   3. Local Panel:
      a. When the "LOCKOUT/STOP" pushbutton is depressed, the associated equipment shall immediately shut down.

2.5 TOOLS AND SPARE PARTS

A. Furnish and deliver the following spare parts carefully boxed or packaged and plainly marked for reordering:
   1. Required lubricants for one complete gearbox change-out.
   2. Three month supply of screenings collection bags based on usage at plant startup.
   3. One sets of special tools required for normal operation and maintenance.

B. Spare parts shall be packed in sturdy containers with clear indelible identification markings and shall be stored in a dry, warm location until transferred to the OWNER at the conclusion of the Project.

2.6 SURFACE PREPARATION AND PAINTING

A. All equipment shall receive shop primer and shop finish coating conforming to the requirements of Section 09900, Painting. If any damage to the paint system occurs, the equipment shall be repainted as directed by the ENGINEER.

B. Surface preparation and painting shall conform to the requirements of Section 09900, Painting.

C. All gears, bearing surfaces, machined surfaces and other surfaces which are to remain unpainted shall receive a heavy application of grease or other rust-resistant coating. This coating shall be maintained during storage and until the equipment is placed into operation.

D. Certify, in writing, that the shop primer and shop finish coating system conforms to the requirements of Section 09900, Painting.

2.7 ANCHORAGE DEVICES

A. Furnish anchor bolts and nuts of Type 316 stainless steel, of ample size and strength for the purpose intended, sized by the equipment manufacturer. Anchor bolts shall be hooked, and provided for direct embedment during placement of concrete.
   1. Anchorage devices shall conform to the requirements of Section 05051, Anchor Bolts, Toggle Bolts and Concrete Inserts.
   2. Refer to and comply with the requirements of Section 03300, Cast-In-Place Concrete and Section 03600, Grout.

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect all equipment immediately upon delivery to site. Al surfaces shall be smooth, free of voids and porosity, without dry spots, crazes or un-reinforced areas. If damaged, notify ENGINEER and manufacturer immediately.

B. Do not install damaged equipment until repairs are made in accordance with manufacturer's written instructions and approved by the ENGINEER. Only minor repair work shall be permitted in the field. All other damaged items shall be sent to factory for repair or replacement.

3.2 INSTALLATION

A. Equipment shall be installed in accordance with manufacturer's instructions and recommendations and the approved Shop Drawings.

B. Furnish and install all required oil and grease for initial operation.

3.3 FIELD TESTS

A. After CONTRACTOR and ENGINEER have mutually agreed that the equipment installation is complete and ready for continuous operation, CONTRACTOR and a qualified field service representative of the manufacturer shall conduct a running test of the equipment

and controls in the presence of ENGINEER to demonstrate that the unit and its controls will function correctly.

1. Operating Test:
    a. Prior to applying electrical power to any motor driven equipment, the drive motor shall be rotated by an external source to demonstrate free operation of all mechanical parts.
    b. Field test the unit together with its controls. Test shall demonstrate to ENGINEER that each part and all parts together function in the manner intended. All necessary testing equipment and manpower shall be provided by CONTRACTOR at his expense.
    c. In the event that CONTRACTOR is unable to demonstrate that equipment meets the requirements of the tests, the equipment will be rejected and adjustments made, and/or modify and retest the equipment as often as necessary to meet the specified requirements.

B. Service representative shall verify that lubrication systems are complete, clean and filled with the proper grade of lubricants.

C. Field Testing: Prior to final acceptance of the screens, three tests shall be conducted according to the EPA Paint Filter Test as described in method 9095 of EPA Publication SW-486. Should the system fail to produce screenings capable of passing the "EPA Paint Filter Test", the manufacturer shall, at its own expense, make all necessary modifications to the equipment until such tests can be passed.

3.4 MANUFACTURER'S SERVICES

A. A factory trained representative shall be provided for installation supervision, start-up and test services and operation and maintenance personnel training services. The representative shall make a minimum of 2 visits, minimum 4 hours on-site for each visit, to the site. The first visit shall be for assistance in the installation of equipment. The second visit shall be for checking the completed installation and start-up of the system. Manufacturer's representative shall test operate the system in the presence of the ENGINEER and verify that the screenings removal equipment conforms to the requirements. Manufacturer's representative shall revisit the job site as often as necessary until all trouble is corrected and the installation is entirely satisfactory.

B. All costs, including travel, lodging, meals and incidentals, shall be considered as included in CONTRACTOR'S bid price.

+ + END OF SECTION + +

SECTION 11605

PERFORATED PLATE SCREENS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:
   1. The contractor shall furnish, install and place into satisfactory operating condition equipment for one (1) in-channel perforated plate screen, 6mm opening.
   2. Each unit shall consist of the screen, motor, gear reducer, controls, control panel, pivot point and lifting attachments as a complete integrated package.
   3. Each unit shall be provided complete with all accessories, spare parts, mounting, anchor bolts, and all other appurtenances required or shown on the drawings.
   4. All equipment called for under this Section shall be supplied by a single manufacturer.

1.2 QUALITY ASSURANCE

A. Qualifications: The supplier or manufacturer shall have experience in producing similar equipment, and shall show evidence of a minimum of fifty (50) similar screens installed in the United States and show evidence of five (5) installations in satisfactory operation for at least five (5) years.

B. Screens shall be the manufacturer's standard catalogued product and shall be modified to provide compliance with the drawings, specifications, and the service conditions specified.

C. Equipment shall be manufactured domestically with parts available within a single-state radius of Texas.

D. Shop Assembly and Testing:
   1. Each screen shall be factory assembled and tested for a minimum of eight hours prior to delivery and shall be delivered to the site fully assembled (other than the discharge chute and support legs).
   2. The motor and gear reducer shall be factory installed and shall be installed for factory testing.
   3. Factory testing shall be done in the United States.
   4. Screens shall be capable of being set in place and field erected by the CONTRACTOR with minimal field assembly.

1.3 WARRANTY

A. A written supplier's warranty shall be provided for the equipment specified in this Section.

B. The warranty shall be for a minimum period of one (1) year from start-up or 18 months from time of equipment shipment, whichever comes first.

C. Such warranty shall cover all defects or failures of materials or workmanship which occur as the result of normal operation and service.

1.4 SUBMITTAL

A. Submit for approval according to the requirements of Section 01330, Submittal Procedures:
   1. Certified shop and erection drawings showing all important details including materials of construction, dimensions, loads on supporting structures, field connections, and anchor bolt locations.
   2. Descriptive literature, bulletins and/or catalogs of the equipment, including details of the motor, gear reducer, and lubrication points.
   3. Complete data on motors and gear reducers.
   4. Wiring diagrams, electrical schematics and a layout of pushbuttons, switches and lights of the control panel for all control equipment to be furnished.
   5. Parts list including a list of the supplied spare parts.
   6. Equipment weights and lifting points, including the total weight of the equipment and the weight of the single heaviest item.

B. Operation and Maintenance Manuals:
   1. Submit complete manuals including:
      a. Copies of all approved Shop Drawings
      b. Test reports
      c. Complete maintenance parts list, as well as maintenance data and schedules. The manufacturer shall state the amount of and specification for any lubricant required.
      d. Description of operation, including illustrations, specific for the particular installation
      e. Complete connection, interconnecting and assembly diagrams
      f. Spare parts information

1.5 DELIVERY AND STORAGE

A. Equipment delivery and storage is covered in Section 01610, General Equipment Requirements.

PART 2 - PRODUCTS

2.1 PRODUCT AND MANUFACTURER:

A. Provide one of the following:
   1. Headworks
   2. JWCE
   3. John Munier
   4. Or Equal

2.2 SERVICE CONDITIONS

A. General:
   1. The screen furnished shall remove debris from the incoming flow stream by means of movable perforated plate screens.
   2. Flow shall enter the unit through the inlet and material larger than the openings shall be captured.
   3. The plates shall be secured within a framework that is installed in the concrete channel as shown on the Contract Drawings.

4. During each cleaning cycle, the movable plates shall rotate one complete revolution, which will transport the captured material to the discharge chute. At the end of the revolution the movable plates shall have rotated back to their original position so that the horizontal surfaces of the plates are aligned across the width of the channel. Multiple revolutions during normal flow are not acceptable.
5. The intermittent cycling shall raise the screenings out of the channel and into the discharge section of the unit where they are released to the screenings container.
6. Designs employing the use of endlessly moving media, cables, or hydraulic cylinders or raking mechanisms to remove debris are not acceptable.
7. The use of two or motors to complete a screen cleaning cycle is not acceptable.
8. The design shall be such that all maintenance can be accomplished at the operating floor level. No part of the drive system shall be located below the water surface at maximum design flow.

B. Design Conditions:

Equipment Tag(s)	SC-101
Number of Screens	1
Minimum flow per Screen	1.0 MGD
Peak flow per Screen	6.0 MGD
Maximum upstream water level	4.50 ft
Maximum clear water, clean screen headloss	24 inches
Opening width	6 mm
Channel width	3.50 ft
Channel depth including 18 inches freeboard	4.50 ft
Installation angle from the horizontal	60 degrees maximum
Minimum vertical clearance of screen discharge	24 inches
Motor horsepower	5 hp
Main Control Panel Enclosure Type	NEMA 4

C. Performance:
1. The screen shall be designed to handle the peak flow with the maximum upstream liquid level, including the maximum allowable headloss.
2. The screen shall be capable of processing the peak flow without exceeding the maximum upstream water level based on 30% reduction of the screen's free open-area.

2.3 MATERIALS AND CONSTRUCTION

A. General:
1. The perforated plate screen shall be manufactured from type 304 stainless steel shapes (rods, angles, and channels), pipes, and sheets.
2. Welded fabrications involving plates thicker than 5/8 inch thick shall be manufactured from type 304 stainless steel. All welding shall be performed in accordance with AWS D1.1 Structural Welding Code.
3. All mechanical parts shall be designed to handle the forces that may be exerted on the screen during fabrication, shipping, erection, and operation.

4. The perforated plate screen shall undergo a pickling, pacification, or electro-polishing process to ensure maximum corrosion resistance.

B. Frame Assembly:
   1. The frame assembly shall be manufactured from type 304 stainless steel and shall provide a rigid, secure unit capable of withstanding all operating forces.
   2. The frame assembly shall accommodate the plate packages, plate support members, channel sealing strips, covers, and drive unit including gear motor and drive shaft.
   3. The frame assembly sides shall form the supports for cover panels at the sides, the front, and the back of the screen. The sides shall be fully welded to the base sole plate, the stationary plate cross member brackets, and the drive console.
   4. The frame assembly shall be accurately set into position in the channel and shall be capable of supporting the entire screening assembly when suspended from the pivot shaft attached to the support legs.
   5. The frame assembly shall be designed to mount into the channel without the need for recesses in the channel walls or floor. Neoprene side seals shall be attached to the side frames with type 304/304L stainless steel retainers and hardware to seal between the screen and channel walls.
   6. The side frames shall extend fully from the channel invert to the top of the unit and shall be arranged to pivot out of the channel for maintenance. The side frames shall be a minimum of 0.20 inch (5 mm) thick.
   7. Removable, gasketed type 304 stainless steel cover panels shall be provided at the front, back, and sides of the screen frame. The front cover and side covers shall be easily removable and fastened with a quarter turn, flush, keyed locking mechanism. The back covers shall be fastened in place by bolts or screws.
   8. Pivot-point shall be provided to pivot entire screen out of channel without removal of washer/compactor being required. Lifting hooks shall be provided on lower end of screen.

C. Gear Motor Drive Assembly:
   1. The perforated plate screen shall be furnished with an integrated drive assembly rated for continuous duty and shall be selected to match the requirements of the particular screen. The drive motor shall be a totally enclosed fan-cooled (TEFC) electric motor. The drive assembly shall consist of the motor with a gear reducer, drive shaft, bearings, sprockets, and dual drive chains.
   2. Power to the motor shall be 230/460 VAC, 3 phase, and 60 Hz, with a service factor of 1.15. The motor shall be a constant speed unit with a nominal speed of 1800 rpm. The motor shall be rated at 40^{o}C ambient with Class H insulation and shall have a Class B temperature rise at full load.
   3. The drive unit shall be direct coupled to the screen drive shaft through the gear box. The gear box housing shall be constructed from ASTM A-48 Class 30 cast iron. The drive unit shall be sealed from the screenings transport area with a stainless steel plate which is welded to the frame.
   4. Nominal and minimum motor efficiencies shall comply with NEMA MG 1. The gear box shall designed for AGMA Class II, 24 hour duty.
   5. Gear reducers shall have ball or roller bearings throughout with all moving parts immersed in oil. Shafts shall be of high strength alloy steel ground to required tolerances. All ball or roller bearings shall be B-10 rated and manufactured for a minimum 100,000-hour life. At least one bearing on each shaft shall be of the combined radial and thrust type. Gear reducer units shall meet AGMA standards.
   6. The step screen shall be designed with drive mechanism on each side of the unit that transfers the rotation of the gear motor to the movable plates. Both linkage type and chain and sprockets drive mechanisms are acceptable.

7. The screen shall be equipped with electronic overload protection to stop the screen and initiate an alarm in the event of a current overload. Units that incorporate sheer pins for overload protection are not acceptable.
8. Dual speed shall be provided by either dual-speed motor or VFD. Should a VFD be provided, the control panel shall be installed in the air-conditioned MCCF at the southeast corner of the headworks structure (MCCF is at ground-level whereas headworks platform is elevated).

D. Discharge Chute:
1. A fully shrouded and easily removable discharge chute shall be provided at the point of discharge to interface with and direct captured material into the receiving container or conveyance system. The discharge chute shall be manufactured from type 304 stainless steel.

2.4 ELECTRICAL

A. General:
1. In addition to the drive motor, the equipment supplier shall furnish all electrical items specifically called for in this specification section.
2. The contractor shall supply all other electrical items, and interconnecting wiring of proper size, including all conduit and supports required to place the equipment into service.
3. The control system, both local and main, shall be designed and manufactured by the same company that furnishes the mechanical screen.

B. Motors:
1. The motors shall conform to the requirements of Section 01610, General Equipment Requirements, except as modified in this Section.

C. Control Panel:
1. The controls for the perforated plate screen shall be housed in a totally enclosed, front access type NEMA 4X corrosion-resistant enclosure. The panel shall be manufactured by a U.L. listed control panel facility and shall bear a U.L. 508A label.
2. The local controls and motor shall be pre-wired to a terminal strip located inside the control panel.
3. Main control panel wiring shall be color-coded, labeled, neatly cabled and supported in nonflammable wiring raceways. Wiring shall be minimum 16-gauge MTW stranded wire.
4. All switches, pushbuttons, and lights shall be NEMA rated components. IEC rated components are not acceptable.
5. The panel shall be provided with the following components to provide proper operation of the equipment:
   a. NEMA 4 home position limit switch to stop the movable plate package at a predetermined position after each cleaning cycle. Limit switch shall be single pole, double throw (SPDT) and rated not less than 10 amps at 120 volt AC.
   b. Control power On-Off selector switch.
   c. Non-illuminated Hand-Off-Auto selector switch for operation of the perforated plate screen drive.
   d. Power monitor to detect over-current power consumption by the perforated plate screen motor. The power monitor shall measure the input power.
   e. Momentary "reset" push-button for over current reset.
   f. Spare contact for remote indication of "Over Current" status.
   g. Control relays, wiring and circuitry required to implement the control logic.

h. 3-pole non-reversing contactor and overload relay with screw clamp terminals.
i. Full voltage NEMA rated starter. The magnetic starter shall be of the heaterless design and provide phase loss protection, short circuit self-protection and thermal memory. The solid-state overload shall be self-powered.
j. 120 VAC step down control transformer and fused disconnect.
k. Thermal magnetic molded case Square D circuit breakers with a door-mounted operating mechanism capable of being padlocked in the "Off" position when the door is opened.
l. Single channel electronic timer switch. The timer switch shall be capable of a total of 288 operations in 5-minute increments.
m. Current sensing relay which shall continuously monitor the motor current to prevent damage due to a jam obstruction or a unit malfunction. An over current condition that causes motor shutdown shall cause an alarm to sound. The alarm shall be manually reset prior to the unit returning to normal operation.
n. Elapsed time meter.
o. Non-illuminated emergency stop pushbutton and a non-illuminated alarm reset pushbutton.

D. Float Level Switch:
1. A float-switch shall be installed upstream of the stair screen. In automatic mode, the stair screen shall operate when the float switch is triggered based on a high-water elevation of 2-ft above the channel invert.

2.5 SEQUENCE OF OPERATION:

A. Screen Hand Operation:
1. When the screen selector switch is in the Hand position, the screen will run continuously.
2. Turning the screen selector switch to Off will stop the unit.

B. Screen Automatic Operation:
1. When the screen selector switch is in the Auto position, the screen will cycle on demand by the in-channel float switch.
2. Once a preset level differential has been reached, a signal in the form of a dry contact closure is generated for starting the screen.
3. Once directed to start, the screen will run continuously until the float-switch is reset.
4. Should the float-switch remain in the tripped position for more than one minute, the screen shall increase cleaning speed until float-switch is reset.

C. Fault Conditions:
1. Excessive motor current will trip the starter overload relays, immediately stop the drive motor, and illuminate the alarm indicating light. This fault must be reset by depressing the motor starter overload reset internal to the control panel.
2. Momentary motor over or under current will trip the current monitor, immediately stop the drive motor, and illuminate the alarm indicating light. Pushing the reset pushbutton will reset this fault.

2.6 ANCHORAGE AND FASTENERS

A. Anchor Bolts and Fasteners:
1. All fasteners and anchor bolts shall be type 304 stainless steel.

2. Anchor bolts shall be provided for mounting support arms and the shaftless screw conveyor. All threaded fasteners shall be coated with a nickel based anti-seize thread lubricant prior to assembly.
3. The equipment supplier shall furnish all fasteners, anchor bolts, nuts, and washers required for the equipment.

2.7 PAINTING

A. Stainless steel and plastic components shall not be painted. The stainless steel structural components and enclosure panels shall be bead blasted or passivated after fabrication to remove embedded iron, surface rust, and weld burn.

B. Surface Preparation:
   1. Blast clean to an SSPC-SP6 finish, removing all dirt, rust, scale, and foreign materials. Abrasive particle size and type shall be sufficient to produce a surface profile in accordance with recommendations of the Coating Manufacturer or the specified coating system to be applied.
   2. Blast cleaned surfaces shall be cleaned prior to application of specified coatings by a combination of blowing with clean dry air, brushing/brooming and vacuuming.

C. Shop Coatings:
   1. Primer:
      a. Apply primer in a single coat to attain a minimum dry film thickness of 2.5 mils.
      b. Primer shall be:
         1) Tnemec 69-1212 primer
         2) Or Equal.
   2. Top Coat:
      a. The motor, gear reducer, and controls shall have manufacturer's standard paint finish. The motor and gear reducer shall be painted the same color.

2.8 SPARE PARTS

A. Manufacturer shall furnish and deliver the following spare parts carefully boxed or packaged and plainly marked for reordering.
   1. Six (6) perforated screen elements
   2. Ten (10) feet of chain
   3. One-year supply of all recommended lubricants.
   4. One complete set of UHMW trough liners.

PART 3 - EXECUTION

3.1 TESTING

A. The perforated plate screen shall be factory assembled and factory run tested in the United States prior to shipment. The main control panel also shall be factory tested.

B. The screen and conveyor shall be field tested after erection in the presence of the OWNER and ENGINEER to confirm and verify the structural and mechanical compliance to the specification. The field acceptance test shall include demonstrating that the screen and conveyor operate without vibration, jamming, or overheating and perform its specified function satisfactorily.

3.2 INITIAL START-UP AND TRAINING

A. The CONTRACTOR shall provide the services of an authorized service representative for not less than one (1) day, for the following:
   1. One (1) day for inspection of installation, start-up instruction, performance testing supervision, adjustment assistance, and training of OWNER's personnel.

+ + END OF SECTION + +

DIVISION 12

(NOT USED)

DIVISION 13

(NOT USED)

DIVISION 14

(NOT USED)

DIVISION 15

SECTION 15010

PIPING SUPPORT SYSTEMS

PART 1 - GENERAL

1.1 SUBMITTALS

A. Shop Drawings:
   1. Details of each pipe support type used.

PART 2 - PRODUCTS

2.1 SUPPORT SYSTEMS:

A. Channel-type support systems
   1. 304 Stainless Steel
      a. Unistrut
      b. B-Line
      c. Or Equal.
   2. Non-metallic
      a. Aikenstrut
      b. CLIC
      c. Or Equal.

B. Hanger- and Clevis-type support systems
   1. B-line
   2. Anvil
   3. Or Equal

C. Stanchion-type support systems
   1. B-Line
   2. Anvil
   3. Or Equal

D. Adjustable Pipe Saddle Support
   1. B-Line, Figure B-3092
   2. Or Equal

E. Wall Bracket (14-inch to 24-inch pipe)
   1. B-Line Figure B-3067 Heavy Duty Angle Bracket
   2. Or Equal

F. Wall Bracket (8-inch to 12-inch pipe)
   1. B-Line Figure B-3066 Medium Duty Angle Bracket
   2. Or Equal

G. Wall Bracket (4-inch to 6-inch pipe)
   1. B-Line Figure B-3068 Light Duty Angle Bracket
   2. Or Equal

PART 3 - EXECUTION

3.1 INSTALLATION

A. In addition to the pipe supports specifically called for on the drawings, CONTRACTOR shall provide pipe supports as required to fully support all piping systems.

B. CONTRACTOR shall design, supply and install pipe support system using manufacturer's standard available pipe support hardware.

C. Pipe supports shall, at a minimum, be installed at the following locations:
   1. On both sides of each valve, piece of equipment or other appurtenance, such that allowance is made for removal of the valve, piece of equipment, or other appurtenance while leaving the pipe system fully supported. Support piping connections to equipment by pipe support and not by the equipment.
   2. Along straight runs of pipe, the maximum distance between supports shall be as listed below:

Pipe Diameter	Maximum Distance Between Supports	Minimum Hanger Rod Diameter (if Hanger Rods are used)
2" and smaller	6-feet	½"
2-1/2" to 6"	8-feet	¾"
8" to 12"	10-feet	2 @ ¾"
14" to 18"	10-feet	2 @ 1"
Over 18"	Custom Design	

   3. Directly supporting valves 8-inch in diameter and larger.
   4. At least two supports on each side of flexible couplings or flanged coupling adapters to provide that no load is applied to the flexible coupling.
   5. On the pipe within two pipe diameters of each side of elbows and each branch of tees and crosses.
   6. Where piping passes through walls, such that no load is transferred to the wall.

D. Install support systems in accordance with MSS SP 69, Pipe Hangers and Supports-Selection and Application and MSS SP 89, Pipe Hangers and Supports-Fabrication and Installation, unless shown otherwise.
   1. Support no pipe from the pipe above it.
   2. Do not install pipe supports and hangers in equipment access areas or bridge crane runs.

E. Bracing and lateral support:
   1. Provide vertical sway bracing on 10-foot maximum centers
      a. Brace hanging pipes against horizontal movement by both longitudinal and lateral sway bracing.
   2. Install lateral supports for seismic loads at all changes in direction.

F. Thermal expansion and thrust restraint
   1. Install pipe anchors where required to withstand expansion thrust loads and to direct and control thermal expansion.

G. Support types:
   1. Horizontal Suspended Piping:
      a. Single Pipes: Adjustable swivel-ring, splint-ring or clevis hangers.
      b. Grouped Pipes: Trapeze hanger systems.

c. For insulated piping, furnish galvanized steel protection shields, welding insulation saddles, or precut sections of rigid insulation (with vapor barrier) at all hanger locations.

2. Horizontal Piping Supported From Walls:
   a. Single Pipes: Wall brackets or wall clips attached to wall with anchors. Clips attached to wall-mounted framing also acceptable.
   b. Stacked Piping:
      1) Wall-mounted framing system and clips acceptable for piping smaller than 3-inch minimal diameter.
      2) Piping clamps that resist axial movement of pipe through support not acceptable.
   c. Insulated piping shall have the insulation removed in the vicinity of wall brackets and piping clips to allow only direct pipe wall contact with the support system.
3. Horizontal Piping Supported From Floors:
   a. Stanchion Type:
      1) Pedestal type; adjustable with stanchion, saddle, and anchoring flange.
      2) Use yoked saddles for piping whose centerline elevation is 18 inches or greater above the floor and for all exterior installations.
      3) Provide neoprene waffle isolation pad under anchoring flanges, adjacent to equipment or where otherwise required to provide vibration isolation.
   b. Floor-Mounted Channel Supports:
      1) Use for piping smaller than 3-inch nominal diameter running along floors and in trenches at piping elevations lower than can be accommodated using pedestal pipe supports.
      2) Attach channel framing to floors with anchor bolts.
      3) Attach pipe to channel with clips or pipe clamps.
   c. Concrete Cradles:
      1) Use for piping larger than 3-inch along floor and in trenches at piping elevations lower than can be accommodated using stanchion type.
4. Vertical Pipe:
   a. Support with wall brackets and base elbow or riser clamps on floor penetrations.
   b. Insulated piping shall have the insulation removed in the vicinity of wall brackets and riser clamps, to allow only direct wall contact with the support system.

H. Standard Attachments:
1. To Concrete Ceilings: Concrete inserts.
2. To Steel Beams: I-beam clamp or welded attachments.
3. To Wooden Beams: Lag screws and angle clips to members not less than 2-1/2 inches thick.
4. To Concrete Walls: Concrete inserts or brackets or clip angles with anchor bolts.
5. Existing Walls and Ceilings: Install as specified for new construction, unless shown otherwise.
6. Repair mounting surfaces to original condition after attachments are made.

I. Isolation:
1. Install elastomeric inserts designed to isolate piping from pipe supports where copper pipe is run in stainless steel supports, or where other dissimilar metals are in contact with pipe supports.

J. Materials:
1. Channel-type, hanger-type and trapeze-type support systems and pipe racks constructed of channel systems:

a. Provide non-metallic support systems in all chemical storage and feed areas. Provide type 316 stainless steel fasteners.
b. Provide type 304 stainless steel support systems and fasteners in all other areas.

2. Stanchion-type support systems
   a. Provide steel and ductile iron stanchion components
   b. Coat stanchions after assembly per specification Section 09900, Painting.

+ + END OF SECTION + +

SECTION 15100

PIPE AND FITTINGS

PART 1 - GENERAL

1.1 SUBMITTALS

A. Shop Drawings:
   1. Product data sheets for each piping system.
      a. Include information on pipe, fittings and joint systems.
   2. Complete catalog information, descriptive literature, specifications, and identification of materials of construction.
   3. Complete descriptions and data for all coatings and linings.
   4. Tests and inspection data for pipe and coatings/linings.

B. Operation and Maintenance Data as specified in Section 01330, SUBMITTAL PROCEDURES.

1.2 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. In accordance with manufacturer's directions.

PART 2 - PRODUCTS

2.1 PIPING SYSTEM DATA SHEETS

A. Piping system data sheets (PSDS) have been attached to this Specification and are incorporated herein by reference. Provide piping systems in accordance with piping system data sheets.

2.2 THRUST RESTRAINT

A. Provide rigid or restrained joints and fittings for all piping systems specified with a test pressure in the Pipe Schedule.

B. Unless otherwise specified in the Pipe Schedule or shown on the Drawings, thrust blocks shall not be used.

PART 3 - EXECUTION

3.1 PIPE SCHEDULE

A. A Pipe Schedule has been attached to this Specification and is incorporated herein by reference. Install piping systems in accordance with Pipe Schedule.

B. For pipe which is shown on the Drawings, but not referenced in the Pipe Schedule, CONTRACTOR to provide pipe material and fittings which are appropriate for the intended service and acceptable to the ENGINEER.

3.2 PREPARATION

A. Inspect pipe and fittings before installation, clean ends thoroughly, and remove foreign matter and dirt from inside.

B. Repair any coatings or linings which were damaged during shipping and handling using manufacturer-approved coating and lining repair materials in accordance with manufacturer's instructions.

3.3 INSTALLATION

A. General:
   1. Join pipe and fittings in accordance with manufacturer's instructions, unless otherwise shown or specified.

B. Joint Assembly:
   1. Flanged Joints (FLG):
      a. Bolt Holes: Straddle vertical centerlines, aligned with connecting equipment flanges or as shown.
      b. Follow a bolt tightening pattern which produces uniform bearing pressure.
      c. Do not over-tighten bolts. Follow manufacturer's recommendation for bolt torque.
      d. Provide gasket at every flanged joint.
      e. Provide insulating flange kit where indicated on Drawings and required in this Specification.
   2. Threaded and Coupled Joints (THR):
      a. Conform to ANSI B1.20.1.
      b. Produce sufficient thread length to ensure full engagement when screwed home in fittings.
      c. Ream pipe ends and clean chips and burrs after threading.
      d. Make connections with not more than three threads exposed.
      e. Lubricate male threads only with thread lubricant or tape as specified on Piping Data Sheets.
      f. PVC Threaded Joints:
         1) Provide Schedule 80 threaded nipple where necessary to connect to threaded valve or fitting.
         2) Use strap wrench for tightening threaded plastic joints. Do not overtighten fittings.
      g. Provide dielectric union or insulating coupling where indicated on Drawings and required in this Specification.
   3. Grooved-End Joints (GRV):
      a. Type: Rigid, except where joints are used to correct misalignment, to provide flexibility, and where shown otherwise, in which case provide flexible type.
   4. Soldered Joints (SLD):
      a. Before soldering, remove stems and washers from solder joint valves.
      b. Use only solder specified for particular service.
      c. Cut pipe ends square and remove fins and burrs.
      d. Protect adjacent surfaces from damage during soldering.
         1) Protect from high temperatures due to flame
         2) Protect from damage due to dripping flux or solder
      e. After thoroughly cleaning pipe and fitting of oil and grease using solvent and emery cloth, apply noncorrosive flux to the male end only.
      f. Solder Joint
      g. Wipe excess solder from exterior of joint before hardened.

5. Solvent Welded Joints (SLV):
    a. Use only solvent cement which is rated for use in the service intended. Check compatibility of solvent cement with service, especially in pipelines which carry chemicals.
    b. Observe all manufacturer's requirements for environmental conditions for use of solvent cement.
    c. Cut pipe ends square and remove fins and burrs.
    d. Apply appropriate primer.
    e. Apply solvent cement and assemble joint.
        1) Hold in place long enough for solvent cement to set-up and hold joint, as assembled, until solvent cement has cured.
    f. Wipe excess solvent cement from exterior of joint before hardened.
6. Proprietary Restrained Mechanical Joints (PRJ):
    a. PRJ piping shall be furnished with factory-fabricated retainer weldment on spigot end.
    b. If PRJ piping is field cut, the pipe joint shall be restrained using Restrained Mechanical Joint (RMJ) Glands as specified in Section 15120, Piping Specialties. Field welding of retainer weldment will not be allowed.
7. Insulating Flanges, Couplings, and Dielectric Unions:
    a. Applications: Provide insulating flange, coupling or di-electric union for all joints at the following locations:
        1) Dissimilar metal piping connections.
        2) Cathodically protected piping penetration to buildings.
        3) Submerged to unsubmerged metallic piping connections.
        4) Where required for electrically insulated connection.
    b. Installation:
        1) Insulating joints connecting immersed piping to non-immersed piping shall be installed above maximum water surface elevation.
        2) Align and install insulating joints according to manufacturer's recommendations to avoid damaging insulating materials.

C. Exposed Piping Installation:
1. Piping Runs:
    a. Parallel to building or column lines and perpendicular to floor, unless shown otherwise.
    b. Piping upstream and downstream of flow measuring devices shall provide straight lengths as required for accurate flow measurement.
2. Supports: As specified in Section 15010, PIPING SUPPORT SYSTEMS.
3. Group piping wherever practical at common elevations; install to conserve building space and not interfere with use of space and other work.
4. Provide unions or flanges at each piping connection to equipment or instrumentation on equipment side of each block valve to facilitate installation and removal.
5. Install piping so that no load or movement in excess of that stipulated by equipment manufacturer will be imposed upon equipment connection;
6. Install piping to allow for contraction and expansion without stressing pipe, joints, or connected equipment.
7. Piping clearance, unless otherwise shown:
    a. Over Walkway and Stairs: Minimum of 7 feet 6 inches, measured from walking surface or stair tread to lowest extremity of piping system including flanges, valve bodies or mechanisms, insulation, or hanger/support systems.
    b. Between Equipment or Equipment Piping and Adjacent Piping: Minimum 3 feet 0 inch, measured from equipment extremity and extremity of piping system

including flanges, valve bodies or mechanisms, insulation, or hanger/support systems.

c. From Adjacent Work: Minimum 1 inch from nearest extremity of completed piping system including flanges, valve bodies or mechanisms, insulation, or hanger/support systems.
d. Do not route piping in front of or to interfere with access ways, ladders, stairs, platforms, walkways, openings, doors, or windows.
e. Headroom in front of openings, doors, and windows shall not be less than the top of the opening.
f. Do not install piping containing liquids or liquid vapors in transformer vaults or electrical equipment rooms.
g. Do not route piping over, around, in front of, in back of, or below electrical equipment including controls, panels, switches, terminals, boxes, or other similar electrical work.

D. Buried Pipe Installation:
1. Pipe Placement:
a. Keep trench dry until pipe laying and joining are completed.
b. Exercise care when lowering pipe into trench to prevent twisting or damage to pipe.
c. Prevent foreign material from entering pipe during placement.
1) Close and block open end of last laid pipe section when placement operations are not in progress and at close of day's work.
d. Lay pipe upgrade with bell ends pointing in direction of laying.
e. Deflect pipe at joints for pipelines laid on a curve using unsymmetrical closure of spigot into bell. Utilize a maximum of 75 percent of manufacturer's recommended allowable joint deflection.
1) If joint deflection of standard pipe lengths will not accommodate horizontal or vertical curves in alignment, provide:
a) Shorter pipe lengths.
b) Fittings/bends.
f. Secure pipe which has been placed from movement or damage while placing the next section of pipe.
g. Prevent uplift and floating of pipe prior to backfilling.

E. Cleaning:
1. Following assembly and testing, and prior to disinfection and final acceptance, flush pipelines with water at 2.5 fps minimum flushing velocity until foreign matter is removed. At a minimum, flush for a period of time which will flush the entire pipeline volume three times.
a. If impractical to flush large diameter pipe at 2.5 fps, clean in-place from inside by brushing and sweeping, then flush line at lower velocity. If lower velocity is used, flush the entire pipeline volume five times.
2. Provide temporary means of removing flushing water from pipeline during flushing.
3. Provide means for removal/screening of debris from the flushing water, disposal of debris and disposal of flushing water.

3.4 TESTING

A. Pressure test piping in accordance with the Pipe Schedule, and Section 15990, Pressure Testing of Piping Systems.

3.5 SUPPLEMENTS

A. The following supplements are attached to this Specification section and incorporated herein by reference:
   1. 15100 PS – Pipe Schedule
   2. 15100 PSDS DIP – Ductile Iron Pipe
   3. 15100 PSDS GSP – Galvanized Steel Pipe

+ + END OF SECTION + +

SECTION 15100 PS

PIPE SCHEDULE

Contractor shall install piping systems in accordance with the following pipe schedule:

FLOW STREAM I.D.	DESCRIPTION	SERVICE	EXPOSURE	SIZE RANGE	MATERIAL	JOINT TYPE	TEST PRESSURE	LINING	COATING SYSTEM/ COLOR	NOTES
INF	Influent	Sewer	Exposed	All	DIP	FLG	20 psi	Cement-Mortar	No. 300/Grey	
W2	Utility Water	Water	Exposed	All	GSP	THR	120 psi	None	None	

SECTION 15100 PSDS DIP

PIPING SYSTEM DATA SHEET – DUCTILE IRON PIPE

ITEM	DESCRIPTION
Pipe	**Buried Piping:** Pressure class as indicated in the pipe schedule. If not indicated: • All pipe 12" diameter and smaller shall be pressure class 350. • All pipe 14" through 20" shall be pressure class 250. • All pipe larger than 20" shall be pressure class 200. **Flanged Piping:** Special Thickness Class 53 Pressure class shall be per AWWA C150/A21.50 and AWWA C151/A21.51
Lining	**Wastewater:** Dual Thickness Cement-Mortar: AWWA C104/A21.4.
Coating	Unless otherwise specified in the Pipe Schedule, piping shall be coated as follows: **Exposed/Immersed Piping:** • Primer Coating: Where shop primer is applied to protect pipe during shipping, storage and handling, primer shall be compatible with pipe coating requirements of Section 09900, Painting.
Fittings	Lined and coated same as pipe. **Push-On (PO):** AWWA C110/A21.10 and C111/A21.11, gray or ductile iron, 250 psi minimum working pressure. American Cast Iron Pipe Co., Fastite Joint; U.S. Pipe and Foundry, Tyton Joint. **Mechanical (MJ):** AWWA C110/A21.10, C111/A21.11, and C153/A21.53 gray or ductile iron, 250 psi minimum working pressure. Follower glands shall be ductile iron. **Restrained Mechanical Joint (RMJ):** Standard MJ Fittings with RMJ Gland conforming to requirements of Section 15120, PIPING SPECIALTIES. **Proprietary Restrained (PRJ):** AWWA C111/A21.11 and C153/A21.53, ductile iron, 250 psi minimum working pressure. Clow Corp., Super-Lock Joint; American Cast Iron Pipe Co., Flex-Ring or Lok-Ring Joint; U.S. Pipe, TR Flex. **Grooved End (GRV):** AWWA C606 and C110/A21.10, ductile iron, 250 psi minimum working pressure. Victaulic. **Flange (FL):** AWWA C110/A21.10 ductile iron, faced and drilled, 125-pound flat face. Gray cast iron will not be allowed.
Joints	**Push-On (PO):** 250 psi minimum working pressure, AWWA C110/A21.10 and C111/A21.11. American Cast Iron Pipe Co., Fastite Joint; U.S. Pipe and Foundry, Tyton Joint. **Mechanical (MJ):** 250 psi minimum working pressure. **Restrained Mechanical Joint (RMJ):** Standard MJ Joint with RMJ gland conforming to requirements of Section 15120, PIPING

ITEM	DESCRIPTION
	SPECIALTIES. **Proprietary Restrained (PRJ):** 150 psi minimum working pressure. Clow Corp., Super-Lock; American Cast Iron Pipe Co., Flex-Ring or Lok-Ring; U.S. Pipe, TR Flex. **Grooved End (GR):** Rigid type radius cut conforming to AWWA C606, 250 psi minimum working pressure. Victaulic. **Flange (FL):** 125-pound flat face, ductile iron, threaded conforming to AWWA C115/A21.15. Gray cast iron will not be allowed. Branch connections 3 inches and smaller, shall be made with service saddles as specified in Section 15120, PIPING SPECIALTIES.
Couplings	**Grooved End:** 250 psi minimum working pressure, malleable iron per ASTM A47 or ductile iron per ASTM A536. Victaulic. **Grooved End Adapter Flanges:** 250 psi minimum working pressure, malleable iron per ASTM A47 or ductile iron per ASTM A536. Victaulic.
Bolting	**T-Bolts and other specialty bolts:** Type 304 stainless steel **Hex Bolts:** ASTM A320/A320M, Type 304 stainless steel, Grade B8, Class 2 **Nuts:** ASTM F594, Type 304 stainless steel, Grade B8, Class 2
Gaskets	**Push-On, Mechanical, and Proprietary Restrained Joints:** Rubber conforming to AWWA C111/A21.11. **Grooved End Joints:** Halogenated butyl conforming to ASTM D2000 and AWWA C606. **Flanged**, Water and Sewage Service: 1/8 inch-thick, red rubber (SBR), hardness 80 (Shore A), rated to 200 degrees F, conforming to ANSI B16.21, AWWA C207, and ASTM D1330, Grades 1 and 2. Full face for 125-pound flat-faced flanges, flat-ring type for 250-pound raised-face flanges. Blind flanges shall be gasketed covering the entire inside face with the gasket cemented to the blind flange. Gasket pressure rating to equal or exceed the system hydrostatic test pressure.
Joint Lubricant	Manufacturer's standard.

SECTION 15100 PSDS GSP

PIPING SYSTEM DATA SHEET – GALVANIZED STEEL PIPE

ITEM	SIZE	DESCRIPTION
Pipe		Galvanized carbon steel, ASTM A106, Grade B seamless or ASTM A53 Rev A, Grade B seamless or ERW.
	2 inch & smaller	Schedule 80.
	2-1/2 thru 6 inch	Schedule 40.
	8 thru 12 inch	Schedule 30.
	14 inch	Standard weight.
Joints	3 inch & smaller	Threaded or flanged at valves and equipment, or grooved end meeting the requirements of AWWA C606.
	4 inch & larger	Flanged at valves and equipment, or grooved end meeting the requirements of AWWA C606.
Fittings		Threaded: 150- or 300-pound malleable iron, ASTM A197 or ASTM A47, dimensions in accordance with ANSI B16.3. Grooved End: Malleable iron ASTM A47 or ductile iron ASTM A536, 250 psi working pressure, grooved ends to accept couplings without field preparation. Victaulic or equal.
Branch Connections	2 inch & smaller	Tee or reducing tee in conformance with Fittings, above, galvanized 2,000-pound WOG threadolet or welding boss; galvanize after welding.
	2-1/2 inch & larger	Branch Same Size as Run: Grooved end tee in accordance with Fittings, above. Branch One or More Sizes Smaller Than Run: Grooved end reducing tee in accordance with Fittings, above.
Flanges		Galvanized forged carbon steel, ASTM A105/A105M, ANSI B16.5 Class 150 or Class 300, threaded, 1/16-inch raised face. Grooved end adapter flange, malleable iron ASTM A47 or ductile iron ASTM A536. Victaulic or equal.
Unions		Threaded malleable iron, ASTM A197 or A47, 300-pound WOG, brass to iron seat, meeting the requirements of ANSI B16.3.
Couplings		Grooved End: Rigid joint malleable iron, ASTM A47 or ductile iron, ASTM A536, 250 psi working pressure. Victaulic or equal.
Plugs		Forged carbon steel, ASTM A181/A181M Rev A, Grade II, round head, threaded, galvanized.
Bolting		Grooved End Couplings: Carbon steel, ASTM A183 bolts and nuts, 110,000 psi minimum tensile strength. Flanges: Carbon steel ASTM A307, Grade A hex head bolts and ASTM A563,Grade A hex head nuts.

Gaskets	All Flanges	Flanged, Water and Sewage Service: 1/8-inch thick, red rubber (SBR), hardness 80 (Shore A), rated to 200 degrees F., conforming to ANSI B16.21, AWWA C207, and ASTM D1330, Grades 1 and 2. Blind flanges shall be gasketed covering the entire inside face with the gasket cemented to the blind flange.
	Grooved end Couplings	EPDM or chlorinated butyl per ASTM D2000 for water and air to 230 degrees F, dimensions conforming to AWWA C606.
Thread Lubricant	2 inch & smaller	Teflon tape or joint compound that is insoluble in water.

SECTION 15990

PRESSURE TESTING OF PIPING SYSTEMS

PART 1 - SUBMITTALS

1.1 TESTING PLAN

A. Testing Plan: Submit prior to testing and include at least the information that follows.
   a. Testing dates.
   b. Piping systems and section(s) to be tested.
   c. Test type.
   d. Method of isolation.
   e. Calculation of maximum allowable leakage for piping section(s) to be tested.
2. Certifications of Calibration: Testing equipment.
3. Certified Test Report.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 NOTIFICATION

A. Notify ENGINEER in writing 5 days in advance of testing. Perform testing in presence of ENGINEER.

3.2 PRESSURE TESTING

A. General:
   1. Complete installation of piping system, including all thrust restraint, prior to pressure testing.
      a. If thrust blocking is specified, wait 5 days minimum after concrete thrust blocking is installed to perform pressure tests. If high-early strength cement is used for thrust blocking, wait may be reduced to 2 days.
   2. Prior to test, remove and replace with pipe spools or suitably isolate appurtenant instruments or devices that could be damaged by pressure testing.
   3. New Piping Connected to Existing Piping: Isolate new piping with grooved-end pipe caps, spectacle blinds, blind flanges, or as acceptable to ENGINEER.
   4. Piping to be Pressure Tested and Test Pressure: as indicated on Piping Schedule.

B. Testing with Water:
   1. Fluid: Clean, potable water.
   2. Pipeline Protection:
      a. Maximum Filling Velocity: 0.25 foot per second, applied over full area of pipe.
      b. Vent piping during filling. Open vents at high points of piping system or loosen flanges, using at least four bolts, or use equipment vents to purge air pockets.
   3. Exposed Piping:
      a. Perform testing on insulated piping prior to application of insulation
      b. Maintain hydrostatic test pressure continuously for 60 minutes, minimum, and for such additional time as necessary to conduct examinations for leakage.

c. Examine joints and connections for leakage.
   1) Correct visible leakage and retest as specified.
   2) Empty pipe of water prior to final cleaning or disinfection.

4. Buried Piping:
   a. Test after backfilling has been completed.
   b. Expel air from piping system during filling.
   c. Apply and maintain specified test pressure with hydraulic force pump. Valve off piping system when test pressure is reached.
   d. Maintain hydrostatic test pressure continuously for 2 hours minimum, reopening isolation valve only as necessary to restore test pressure.
   e. Determine actual leakage by measuring quantity of water necessary to maintain specified test pressure for duration of test.
   f. Maximum Allowable Leakage:

$$L = \frac{SD(P)^{1/2}}{133{,}200}$$

where:

L = Allowable leakage, in gallons per hour.
S = Length of pipe tested, in feet.
D = Nominal diameter of pipe, in inches.
P = Test pressure during leakage test, in pounds per square inch.

   g. Correct leakage greater than allowable, and retest as specified.

C. Testing with Air:
1. Perform only where specifically allowed or called for in Pipe Schedule.
2. Do not perform on:
   a. PVC or CPVC pipe.
   b. Buried and other non-exposed piping.
3. Use Oil-free, dry air.
4. Procedure:
   a. Apply 25% of specified test pressure to piping system prior to final leak testing, to locate visible leaks. Apply soap bubble mixture to joints and connections; examine for leakage.
   b. Correct visible leaks and repeat preliminary test until visible leaks are corrected.
   c. Gradually increase pressure in system to half of specified test pressure. Thereafter, increase pressure in steps of approximately one-tenth of specified test pressure until required test pressure is reached.
   d. Maintain pneumatic test pressure continuously for minimum of 10 minutes and for such additional time as necessary to conduct soap bubble examination for leakage.
   e. Correct visible leakage and retest as specified.
5. Allowable Leakage: Piping system, exclusive of possible localized instances at pump or valve packing, shall show no visual evidence of leakage.
6. After testing and final cleaning, purge with nitrogen those lines that will carry flammable gases to assure no explosive mixtures will be present in system during filling process.

3.3 PIPE PRESSURE TESTING LOG

A. All pressure tests shall be witnessed by ENGINEER. CONTRACTOR shall keep a pipe pressure testing log to document the pressure testing and ENGINEER's approval of such.

1. Specific details of the contents and format pipe pressure testing log shall be determined by the CONTRACTOR and approved by the ENGINEER.
2. At a minimum, pipe pressure testing log shall record, on a daily basis for any day when pipe pressure testing is performed:
   a. Test Report Documentation:
      1) Test date.
      2) Description and identification of piping tested.
      3) Test fluid.
      4) Test pressure.
      5) Remarks, including:
         a) Leaks (type, location).
         b) Repair/replacement performed to remedy excessive leakage.
3. Pipe pressure testing log shall be kept on-site. Pipe pressure testing log shall be signed on a daily basis, for any day when pipe pressure testing log work is performed, by the supervisor of the CONTRACTOR's field crew and by the ENGINEER.
4. Any piping system which was pressure testing, but which was not recorded in the pipe pressure testing log shall be re-tested at the ENGINEER's discretion.

+ + END OF SECTION + +

DIVISION 16

SECTION 16000

GENERAL ELECTRICAL PROVISIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. SCOPE:

This section specifies general requirements for electrical work. Detailed requirements for specific electrical items are specified in other sections but are subject to the general requirements of this section. The electrical drawings and schedules included in this project manual are functional in nature and do not specify exact locations of equipment or equipment terminations.

B. DEFINITIONS:

1. ELEMENTARY OR SCHEMATIC DIAGRAM: A schematic (elementary) diagram shows, by means of graphic symbols, the electrical connections and functions of a specific circuit arrangement. The schematic diagram facilitates tracing the circuit and its functions without regard to the actual physical size, shape, or location of the component devices or parts.

2. ONE-LINE DIAGRAM: A one-line diagram shows by means of single lines and graphical symbols the course of an electrical circuit or system of circuits and the components, devices or parts used therein. Physical relationships are usually disregarded.

3. BLOCK DIAGRAM: A block diagram is a diagram of a system, instrument, computer, or program in which selected portions are represented by annotated boxes and interconnecting lines.

4. WIRING DIAGRAM OR CONNECTION SYSTEM: A wiring or connection diagram includes all of the devices in a system and shows their physical relationship to each other including terminals and interconnecting wiring in an assembly. This diagram shall be (a) in a form showing interconnecting wiring only by terminal designation (wireless diagram), or (b) a panel layout diagram showing the physical location of devices plus the elementary diagram.

5. INTERCONNECTION DIAGRAM: Interconnection diagrams shall show all external connections between terminals of equipment and outside points, such as motors and auxiliary devices. References shall be shown to all connection diagrams which interface to the interconnection diagrams. Interconnection diagrams shall be of the continuous line type. Bundled wires shall be shown as a single line with the direction of entry/exit of the individual wires clearly shown. Wireless diagrams and wire lists are not acceptable.

   Each wire identification as actually installed shall be shown. The wire identification for each end of the same wire shall be identical. All devices and equipment shall be

identified. Terminal blocks shall be shown as actually installed and identified in the equipment complete with individual terminal identification.
All jumpers, shielding and grounding termination details not shown on the equipment connection diagrams shall be shown on the interconnection diagrams. Wires or jumpers shown on the equipment connection diagrams shall not be shown again on the interconnection diagram. Signal and DC circuit polarities and wire pairs shall be shown. Spare wires and cables shall be shown.

6. ARRANGEMENT, LAYOUT, OR OUTLINE DRAWINGS: An arrangement, layout, or outline drawing is one which shows the physical space and mounting requirements of a piece of equipment. It may also indicate ventilation requirements and space provided for connections or the location to which connections are to be made.

1.2 QUALITY ASSURANCE

A. REFERENCES:

This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids). If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued. Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
NECA-1	National Electrical Contractors Association – Standard Practices for Good Workmanship in Electrical Contracting
NFPA-70	National Electrical Code (NEC)

B. IDENTIFICATION OF LISTED PRODUCTS:

Electrical equipment and materials shall be listed for the purpose for which they are to be used, by an independent testing laboratory. Three such organizations are Underwriters Laboratories (UL), Canadian Standards Association (CSA), and Electrical Testing Laboratories (ETL). Independent testing laboratory shall be acceptable to the inspection authority having jurisdiction.

When a product is not available with a testing laboratory listing for the purpose for which it is to serve, the product may be required by the inspection authority, to undergo inspection at the manufacturer's place of assembly. All costs and expenses incurred for such inspections shall be included in the original contract price.

C. FACTORY TESTS:

Where specified in the individual product specification section, factory tests shall be performed at the place of fabrication and performed on completion of manufacture or assembly. The costs of factory tests shall included in the contract price.

1.3 SUBMITTALS

The following submittals shall be provided in accordance with Division 0:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

2. Catalog cuts of equipment, devices, and materials requested by the individual specification sections. Catalog information shall include technical specifications and application information, including ratings, range, weight, accuracy, etc. Catalog cuts shall be edited to show only the items, model numbers, and information which apply.

   Catalog cuts shall be assembled in a folder. Each folder shall contain a cover sheet, indexed by item, and cross-referenced to the appropriate specification paragraph.

3. Interconnection diagram: The Contractor shall prepare interconnection diagrams depicting all cable requirements together with their actual terminations as specified in paragraph 16000-1.01 B.

1.4 DRAWINGS

Where the Contractor is required to provide information on drawings as part of the specified work, such drawings shall be prepared on 22-inch by 34-inch polyester plastic (Mylar) drafting media complete with borders and title blocks clearly identifying project name, equipment and the scope of the drawing. Drawing quality and size of presentation shall be such as to permit 50 percent reduction of such drawings for insertion in operation and maintenance manuals.

1.5 PROJECT/SITE CONDITIONS

A. GENERAL:

Unless otherwise specified, equipment and materials shall be sized and derated for the ambient conditions specified in Division 0.

B. CORROSIVE AREAS:

The following areas are designated as corrosive:

a. Headworks

C. HAZARDOUS (CLASSIFIED) AREAS:

The following areas are designated as hazardous (classified) in accordance with the NEC:

Area	Hazardous Classification
Headworks	

D. SEISMIC:

Electrical equipment, supports, and anchorage shall be designed and installed in accordance with the seismic design requirements specified in Division 0.

1.6 STORAGE OF MATERIALS AND EQUIPMENT

Materials and equipment shall be stored as specified in Division 0. Equipment and materials to be located indoors shall be stored indoors and sealed with plastic film wrap.

1.7 ELECTRICAL NUMBERING SYSTEMS

A. RACEWAY NUMBERS:

Raceways shall be tagged at all terminations. Contractor shall assign raceway numbers in accordance with the following system where raceway numbers have not been assigned:

Raceway Prefix	Type of Function
C	Control or power - 120V or less
H	Power above 600V
N	Pneumatic tubing

P	Power 208V to 600V
S	Signal - data communication or instrumentation
X	Spare

Prefixes shall be followed by a 4-digit number. Add a letter suffix to distinguish the raceways where more than one raceway is routed to a particular piece of equipment.

Example:

Raceway number = P3109A where:
- P = conduit contains power
- 3109 = unique 4-digit number
- A = letter to distinguish raceways to same equipment

B. CONDUCTOR NUMBERS:

Conductors shall be identified with numbers at both ends. Conductor tag numbers shall consist of the equipment number followed by a dash followed by the conductor number specified on the control diagram. Example:

Equipment Tag number = 1900 - L1 where:
- 1900 = cable number
- L1 = conductor number

Conductors in parallel or in series between equipment shall have the same conductor number. Neutral conductors shall have the same conductor number. Wherever possible, the conductor number shall be the same as the equipment terminal to which it connects.

Where factory-wired equipment has terminal numbers different than the conductor numbers shown on the control diagrams:

1. Both shall be shown on the interconnection diagram
2. Include a copy of the interconnection diagram inside of the equipment cabinet.

1.8 INDICATING LAMP COLORS

Unless otherwise specified, indicating lights shall be equipped with colored lenses in accordance with the following schedule:

Color	Function	Example
Red	Run, open valve	Equipment operating, motor running
Green	Ready, closed valve	Equipment ready, end of cycle
White or clear	Normal condition	Control power on, equipment available to operate
Amber (yellow)	Abnormal condition	Failure of equipment, alarm or fault condition

PART 2 - PRODUCTS

2.1 EQUIPMENT AND MATERIALS

A. GENERAL:

Equipment and materials shall be new and free from defects. All material and equipment of the same or a similar type shall be of the same manufacturer throughout the work. Standard production materials shall be used wherever possible.

B. EQUIPMENT FINISH:

Unless otherwise specified, electrical equipment and materials shall be painted by the manufacturer as specified in Division 0.

C. GALVANIZING:

Where specified, galvanizing shall be in accordance with Division 0.

2.2 WIRE MARKERS

Each power and control conductor shall be identified at each terminal to which it is connected. Conductors size No. 10 AWG or smaller shall have identification sleeves. Conductors No. 8 AWG and larger shall use cable markers of the locking tab type. Tabs shall be white plastic with conductor identification number permanently embossed.

Conductors shall be identified in accordance with paragraph 16000-1.07 B. Adhesive strips are not acceptable.

The letters and numbers that identify each wire shall be machine printed on sleeves with permanent black ink with figures 1/8 inch high. Sleeves shall be yellow or white tubing and sized to fit the conductor insulation. Shrink the sleeves with hot air after installation to fit the conductor.

Conductor and Wire Marker Manufacture:

1. TMS Thermofit Marker System by Raychem Co
2. Sleeve style wire marking system by W. H. Brady Co.
3. or equal.

2.3 RACEWAY MARKERS

Raceway markers tags shall be:

1. Solid brass with 0.036-inch minimum thickness.
2. Raceway number stamped in 3/16-inch minimum height characters
3. Attached to the raceway with 316 stainless steel wire.

2.4 NAMEPLATES

Nameplates shall be made from laminated phenolic plastic.

1. Nominal size: 3/4 inch high by 2 inches long.
2. Black backgrounds with 3/16-inch white letters.
3. Fastened using self-tapping stainless steel screws.

Abbreviations shall be submitted to the Construction Manager prior to manufacture because of space limitations. Nameplate adhesives will not be permitted on the outside of enclosures.

2.5 TERMINAL BLOCKS

Unless otherwise specified, terminal blocks shall be panhead strap screw type. Terminals shall be provided with integral marking strips that permanently identify with the connecting wire numbers as shown on the drawings:

1. Terminal blocks for P-circuits (power 208-600 volts)
   a. Rated not less than the conductor current rating
   b. Rated less than 600 volts AC.
2. Terminal blocks for C-circuits and S-circuits:
   a. Rated not less than 20 amperes
   b. Rated less than 600 volts AC.
3. Terminals shall be tin-plated.
4. Insulating material shall be nylon.

2.6 PRODUCT DATA

The following information and product data specified under individual specification sections shall be provided in accordance with Division 0.

1. Applicable operation and maintenance information on an item-by-item basis in accordance with Division 0. Operation and maintenance information shall be provided at the time of equipment, device, or material site delivery, or at a certain stage of project completion as required by Division 0, whichever is the earlier. Full-size drawings shall be reduced to 11 x 17 inches.

2. Test results for motors and electrical systems. A file of the original test results shall be maintained by the Contractor. Prior to acceptance of work, the resulting file shall be provided to the Construction Manager.

3. Description of functional checkout procedures specified under paragraph 16000-3.02 C shall be provided 1 day prior to performing functional checkout tests.

4. Record documents specified in Division 0 and paragraph 16000-3.03.

PART 3 - EXECUTION

3.1 GENERAL

A. CONSTRUCTION:

The work under Division 16 shall be performed in accordance with these specifications.

Refer to the National Electrical Contractors Association's (NECA) National Electrical Installation Standards (NEIS) for Standard Practices for Good Workmanship in Electrical Contracting (NECA-1) as a minimum baseline of quality and workmanship for installing electrical products and systems that defines what is meant by "neat and workmanlike" as required by the National Electrical Code Section 110-12. Specified requirements supersede NECA practices.

Electrical layout drawings are diagrammatic, unless otherwise detailed or dimensioned. The Contractor shall coordinate the location of electrical material or equipment with the work.

Minor changes in location of electrical material or equipment made prior to installation shall be made at no cost to the Owner.

B. HOUSEKEEPING:

Electrical equipment shall be protected from dust, water and damage. Motor control centers, switchgear, and buses shall be wiped free of dust and dirt, kept dry, and shall be vacuumed on the inside within 30 days of acceptance of the work.

Before final acceptance, the Contractor shall touch up any scratches on equipment as specified in Division 0.

Electrical equipment temporarily exposed to weather, debris, liquids, or damage during construction shall be protected as specified in Division 0.

C. ELECTRICAL EQUIPMENT LABELING

Electrical equipment shall have field marked signs and labeling to warn qualified persons of the potential electric arc flash hazards per NEC Article 110.16 Flash Protection.

Electrical distribution equipment and utilization equipment shall be field labels to identify the power source and the load as specified. Refer to NEC Article 110.22 for Identification of Disconnecting Means installation criteria. Specific information is required such as the equipment tag number and equipment description of both the power source and the load equipment.

3.2 TESTING

A. GENERAL:

Prior to energizing the electrical circuits, insulation resistance measurements tests shall be performed using a 1000-volt megohmmeter to verify the conductor is acceptable for use on the project. The test measurements shall be recorded on the specified forms and provided in accordance with paragraph 16000-1.03.

B. INSULATION RESISTANCE MEASUREMENTS:

1. GENERAL: Insulation resistance measurements shall be made on conductors and energized parts of electrical equipment. Minimum acceptable values of insulation resistance shall be in accordance with the applicable ICEA, NEMA or ANSI standards for the equipment or material being tested, unless otherwise specified. The ambient temperature at which insulation resistance is measured shall be recorded on the test form.

2. CONDUCTOR AND CABLE TESTS: The phase-to-ground insulation resistance shall be measured for all circuits rated 120 volts and above except lighting circuits. Measurements may be made with motors and other equipment connected. Solid state equipment shall be disconnected, unless the equipment is normally tested by the manufacturer at voltages in excess of 1000 volts DC.

3. MOTOR TESTS: Motors shall have their insulation resistance measured before they are connected. Motors 50 HP and larger shall have their insulation resistance measured at the time of delivery as well as when they are connected. Insulation resistance values less than 10 megohms are not acceptable.

C. PRE-FUNCTIONAL TEST CHECKOUT:

Functional testing shall be performed in accordance with the requirements of Section 17000. Prior to functional testing, all protective devices shall be adjusted and made operative.

1. Submit a description of the proposed functional test procedures prior to the performance of functional checkout.

2. Prior to energization of equipment, perform a functional checkout of the control circuit. Checkout:
   a. Energizing each control circuit.
   b. Operating each control device, alarm device, or monitoring device.
   c. Operate each interlock to verify that the specified action occurs.

Verify motors are connected to rotate in the correct direction. Verification may be accomplished by momentarily energizing the motor, provided the Contractor confirms that neither the motor nor the driven equipment will be damaged by reverse operation or momentary energization.

3.3 RECORD DOCUMENTS

Contract documents shall be maintained and annotated by the Contractor during construction, including the record drawings specified in Division 0

+ + END OF SECTION + +

DIVISION 17

SECTION 17000

GENERAL REQUIREMENTS FOR INSTRUMENTATION AND CONTROL

PART 1 - GENERAL

1.1 DESCRIPTION

A. SCOPE:

This section specifies general requirements which are applicable to providing a complete, functional instrumentation, communication, and signal systems for the City of Tomball Headworks replacement. The requirements of this section are applicable to all work specified in Division 17 of these specifications.

Electrical requirements applicable to this work include those specified in Section 16000 for general electrical requirements.

B. DESCRIPTION OF WORK:

1. INSTRUMENTATION AND CONTROL SYSTEM: The work consists of Headworks control panel**.**

2. PROGRAMMING: Programming shall be provided by manufacturer.

C. DEFINITIONS:

1. GENERAL: Definitions of terminology related to Instrumentation and Industrial Electronic Systems used in the specifications shall be as defined in IEEE 100, ISA S51.1, and NEMA ICS 1.

2. TWO-WIRE TRANSMITTER: A transducer which derives operating power supply from the signal transmission circuit and requires no separate power supply connections. A two-wire transmitter produces a 4 to 20 milliampere current regulated signal in a series circuit with a 24 volt direct current driving potential and a maximum circuit resistance of 600 ohms.

3. FOUR-WIRE TRANSMITTER: A transducer which derives operating power from separate power supply connections. A four-wire transmitter produces a 4 to 20 milliampere current regulated signal in a series circuit with a maximum circuit resistance of 600 ohms. Four-wire transmitters typically require 120Vac or 24Vdc input power supply.

4. GALVANIC ISOLATION: Electrical node having no direct current path to another electrical node. Galvanic isolation refers to a device with electrical inputs and/or outputs which are isolated from ground, the device case, the process fluid, and separate power supply terminals. Inputs and/or outputs may be externally grounded without affecting the characteristics of the devices or providing path for circulation of ground currents.

5. PANEL: An instrument support system which may be a flat surface, a partial enclosure, or a complete enclosure for instruments and other devices used in process control systems including consoles, cabinets and racks. Panels provide mechanical protection, electrical isolation, and protection from dust, dirt, moisture, and chemical contaminants which may be present in the atmosphere.

6. DATA SHEETS: Data sheets shall refer to ISA S20 or ISA TR20.00.01.

7. SIGNAL TYPES: Used in systems specified in Division 17:
   a. LOW-LEVEL ANALOG: Signal with full output level of 100 millivolts or less including thermocouples and resistance temperature detectors.
   b. HIGH-LEVEL ANALOG: Signals with full output level greater than 100 millivolts but less than 30 volts, including 4 20 mA transmission.
   c. DIGITAL CODE: Coded information from the output of an analog to digital converter or digital transmission terminal.
   d. PULSE FREQUENCY: Counting pulses emitted from speed or flow transmitters.
   e. MODULATED SIGNALS: Signals from modems or low level audio signals. Normal signal level: plus 4 dBm to minus 22 dBm. Frequency range is 300 to 10,000 Hertz.
   f. DISCRETE CONTROL OR EVENTS: Dry contact closures and signals monitored by solid state equipment, relays, or control circuits.
   g. LOW VOLTAGE DISCRETE CONTROL OR EVENTS: Dry contact closures and signals monitored by solid state equipment, relays, or control circuits operating at less than 30 volts and 250 milliamperes.
   h. HIGH-LEVEL AUDIO SIGNALS: Audio signals exceeding plus 4 dBm, including loudspeaker circuits.
   i. RADIO FREQUENCY SIGNALS: Continuous wave alternating current signals with fundamental frequency greater than 10 kilohertz.

8. SYSTEMS INTEGRATOR: A firm engaged in the business of detailed control system design and engineering, instrumentation component purchase, system and panel assembly, programming, and implementing the specified process control and industrial automation systems.

1.2 QUALITY ASSURANCE

A. REFERENCES:

This section contains references to the following documents. They are a part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid (or on the effective date of the Agreement if there were no Bids).

If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or

otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.

Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
IEEE 100	Standard Dictionary of Electrical and Electronics Terms
ISA S5.4	Instrument Loop Diagrams
ISA S20	Specification Forms For Process Measurement and Control Instrumentation, Primary Elements, and Control Valves
ISA S51.1	Process Instrumentation Terminology
ISA TR20.00.01	Specification Forms for Process Measurement and Control Instruments Part 1: General Considerations
NEMA ICS 1	General Standards for Industrial Control and Systems

B. SYSTEMS INTEGRATOR RESPONSIBILITY:

1. General

   a. The specified control system and instrumentation integration including panel building, instrument calibration, testing, start-up, operational testing, and training shall be performed by a Systems Integrator staffed with qualified personnel, possessing necessary equipment and experience in performing similar installations.
   b. The control system components shall, as far as practical, be of one manufacturer.
   c. The components, modules, devices, and control system equipment shall be recognized industrial quality products. Recognized commercial or office grade products are prohibited.
   d. The overall system performance shall be demonstrated to and accepted by Owner.
   e. The application software packages shall be latest versions available, or compatible with existing software currently in use.

2. Pre-Submittal Conference:

   a. Schedule a pre-submittal conference with the Owner and Construction Manager within 30-calendar days after Contract award to discuss the work, equipment, submittal format, and establish the framework for project coordination and communication.
   b. Provide materials 10-days prior to the conference:

      1) Instrument Index that lists the devices and instruments specified in Division 17 identify each by tag number, description, function, manufacturer, and model number.

2) Product descriptive literature with a statement that the item is as specified.
3) Proposed equal products with comparative listing of the published specifications for the specified item and the proposed item.
4) Project schedule with deliverables and milestones.
5) Project Control System Block Diagram, when specified.
6) Submit a sample portion of documented PLC and Operator Interface program, when specified.
7) A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. A check mark shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated, and therefore requested by the Contractor, each requested deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications.

c. The pre-submittal conference will not replace the Product and Shop Drawing Submittal review process.

C. PROCESS EQUIPMENT COORDINATION

1. Division 17 specified equipment shall be coordinated for proper operation with equipment related process equipment specified in other Divisions.
2. Equipment shall be integrated, furnished, and installed in conformance with the drawings, specifications, and the recommendations of the equipment manufacturer and the related processes equipment manufacturers.
3. Systems Integrator shall obtain manufacturer's technical information for items of equipment not provided with, but directly connected to, the control system. Provide the necessary coordination and components for correct signal interfaces between specified equipment and the control system.
4. Systems Integrator shall coordinate with project subcontractors and equipment suppliers.
5. Systems Integrator shall provide installation supervision for the duration of the project, a minimum of 1 man-weeks on-site.
6. Conflicts between the plans, specifications, manufacturer/vendor drawings and installation instructions, etc., shall be presented to the Construction Manager for resolution before proceeding.

1.3 ENVIRONMENTAL CONDITIONS

A. GENERAL:
Specified data communication and process control equipment shall suitable for operation in outdoor locations. Ambient conditions are specified in Division 0.

B. CORROSIVE LOCATIONS:
Corrosive locations shall be as specified in Division 16.

C. HAZARDOUS (CLASSIFIED) AREAS:
Hazardous areas shall be as specified in Division 16.

D. SEISMIC:
Equipment and supports shall be braced per Division 0.

1.4 FUNCTIONAL REQUIREMENTS

A. GENERAL:

The instrumentation and control system functions are shown on the drawings and specified in subsequent sections of Division 17. The Systems Integrator drawings and integration practices shall be as defined in IEEE 100, ISA S51.1, and NEMA ICS 1.

B. SUBMITTAL DRAWINGS:

1. GENERAL: The drawings included in the project manual are functional in nature and do not show exact locations of equipment or interconnections between equipment. The Contractor's Systems Integrator shall prepare detailed installation drawings as specified below.
2. Drawings prepared in AutoCAD version 2006 with borders and title blocks identifying the project, system, revisions to the drawing, and type of drawing. Each revision of a drawing shall include the date and description of the revisions. Drawing prints shall be 11" x 17" with a minimum lettering size of 1/8".
3. Diagrams shall carry a uniform and coordinated set of wire numbers and terminal block numbers in compliance with panel wiring, Section 17110, to permit cross-referencing between contract documents and the drawings prepared by the Contractor.
4. CONNECTION DIAGRAMS: Show components of a control panel in an arrangement similar to the actual layout of the panel including internal wiring between devices within the panel. Show terminal blocks used for internal wiring or field wiring, identified as such. Indicate insulation color code, signal polarities, and wire numbers and terminal block numbers.
5. INTERCONNECTION DIAGRAMS: Show panels, panel devices, and field devices with wire numbers, cable numbers, raceway numbers, terminal box numbers, terminal block numbers, panel numbers, and field device tag numbers.
6. ELEMENTARY OR SCHEMATIC DIAGRAM: Shows, by means of graphic symbols, the electrical connections and functions of a specific circuit arrangement. Provide schematics for internal panel power distribution, lighting, and any panel HVAC.
   ARRANGEMENT, LAYOUT, OR OUTLINE DRAWINGS: Show the dimensioned external and interior control panel views with components and Bill of Material. Provide panel heat load calculations, and indicate cooling or ventilation provisions as required.
7. LOOP DIAGRAMS: Provide loop diagrams for analog and discrete loops interconnected into the control system circuits:
   a. Prepare per ISA S5.4 – Loop Diagrams using
   b. Show device element wiring of the system.
   c. Show circuits for hardwired device interlocks.
   d. Show circuit cable and wire cable numbers, signal polarities, and terminal block numbers.

1.5 SUBMITTALS

The following information shall be provided in accordance with and Division 0:

1. A copy of this specification section, with addendum updates included, and all referenced and applicable sections, with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. A check mark shall denote full compliance with a paragraph as a whole.

2. If deviations from the specifications are indicated, and therefore requested by the Contractor, each requested deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph, referenced to a detailed written explanation of the reasons for requesting the deviation.

3. The Construction Manager shall be the final authority for determining acceptability of requested deviations. The remaining portions of the paragraph not underlined will signify compliance on the part of the Contractor with the specifications.

4. Failure to include a copy of the marked-up specification sections, along with justification for requested deviations from the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration.

5. Detailed product literature, showing product specifications and model number breakdown. Mark to denote features and options included. Include only the applicable pages.

6. Manufacturer's installation manual excerpts, as to be used for this project:
   a. Installation details/drawings.
   b. Electrical connection diagrams
   c. Calibration procedures.

7. Drawings and diagrams specified in paragraph 17000-1.04 B.

8. Nameplate list with material, tag number and description as specified herein.

9. Data Sheets in accordance with ISA 20 for each instrument. Identical instruments may be submitted with one common ISA Data Sheet and accompanying tag list.

10. Review the submittal requirements specified in other Division 17 Sections.

PART 2 - PRODUCTS

2.1 MATERIALS AND QUALITY

Equipment material shall be new, free from defects, and industrial-grade, as specified. Each type of instrument, instrument accessory, and device used throughout the work shall be manufactured by one firm, where possible.

Electronic equipment shall be of solid-state construction with printed or etched circuit boards of glass epoxy of sufficient thickness to prevent warping.

Printed circuit boards in field mounted equipment shall be coated with 2 mils of conformal coating in compliance with MILSPEC MIL-I-46058C.

2.2 NAMEPLATES

Nameplates shall be provided for all field mounted instrument, analyzer, or equipment specified in Division 17. Nameplate lettering shall include the equipment or instrument loop title and the instrument or equipment tag number, where nameplate engraving is not specified or shown. Nameplates shall be machine engraved black phenolic with white 5/32-inch high lettering, as minimum, unless otherwise specified or shown. Nameplate wording may be changed without additional cost or time, if changes are made prior to commencement of engraving.

Nameplates shall be attached to support hardware with a minimum of two self-tapping type 316 stainless steel screws in a readily visible location so the nameplate will remain to identify the service when the device is removed. Field instrument namplates shall be attached with braided stainless steel straps where not stand mounted.

2.3 PRODUCT DATA

The following Product Data shall be provided in accordance with Division 0.

1. Record drawings specified by paragraph 17000-1.04 B and the schedules included in Division 17 shall be provided in accordance with Division 0 in the latest AutoCAD format and PDF format on CD.

2. Provide record drawing prints of all drawings following project start-up, but prior to acceptance of the work showing the final constructed state of the instrumentation and control systems.

3. Operating and maintenance information shall be provided in accordance with Division 0. Include the following in each Operation and Maintenance manual:

    a. Final reviewed Submittals, including revised as-built record drawings.
    b. Manufacturer's operation and maintenance instructions, edited for this project.
    c. Written record of menu configuration, jumpers, switch settings, and other configurable parameters for each instrument.

PART 3 - EXECUTION

3.1 INSTALLATION

A. GENERAL:

Equipment shall be installed in locations that are accessible for operation and maintenance services. Equipment not accessible shall be reinstalled at no cost to the Owner.

Installation, calibration, settings, and testing procedures are specified in Section 17000.

B. FIELD EQUIPMENT:

Equipment shall be provided with ports and adjustable items accessible for in-place testing and calibration. Install equipment between 48 inches and 60 inches above the floor or permanent work platform. Equipment shall be mounted to avoid shock or vibration that may impair operation. Equipment shall be mounted for unobstructed access and walkways. Equipment support systems shall not be attached to handrails, process piping or mechanical equipment.

Instruments and cabinets supported by concrete walls shall be spaced 5/8 inch by framing channel between instrument or cabinet and wall. Block wall shall have additional installation supports, as required, to avoid damage to the wall. Equipment supports shall be hot-dip galvanized after fabrication or shall be 316L stainless steel, as shown or specified.

Support systems including panels shall be designed in accordance with Division 0 to prevent deformation greater than 1/8 inch in any direction under the attached equipment load and under an external load of 200 pounds.

In wet or outdoor areas, conduit penetrations into instrument housing shall be made through the bottom (preferred) or side of enclosures to minimize water entry from around or from inside of conduits. Provide conduit hubs for connections and waterproof mastic for moisture sealant.

Nameplates shall be provided for all field mounted equipment. Nameplates shall be attached to support hardware with a minimum of two self-tapping Type 316 stainless steel screws in a readily visible location, but such that if the field device is changed out, the nameplate will remain to identify the service.

C. ELECTRICAL POWER CONNECTIONS:

Equipment electric power wiring shall comply with Division 16. Power disconnect switches shall be provided within sight of equipment and labeled to indicate the specific equipment served and the power source location. "Within sight of" is defined as having an unobstructed view from the equipment served and within 50 feet of the equipment served.

Equipment power disconnect switches shall be mounted between 36 inches and 72 inches above the floor or permanent work platform. Where equipment location requirements cannot be met by a single disconnect switch, provide two disconnect switches: one at the equipment and one at the work platform.

Provide a surge arrestor on each 120 volt AC disconnect switch serving equipment located outdoors. Surge arrestor shall be Telematic, LP Series or equal.

D. SIGNAL CONNECTIONS:

Equipment electric signal connections shall be made on terminal blocks or by locking plug and receptacle assemblies. Flexible cable, receptacle and plug assemblies shall be used where shown or specified.

Jacketed flexible conduit shall be used between equipment and rigid raceway systems. Flexible cable assemblies may be used where plug and receptacle assemblies are provided and the installation is not subject to mechanical damage in

normal use. The length of flexible conduit or cord assemblies shall not exceed 2 feet.except where sufficient length is required to allow withdrawal of instruments for maintenance or calibration without disconnection of conduit or cord assemblies.

3.2 FIELD TESTS AND INSPECTIONS

A. DELIVERY INSPECTION:

The Contractor shall notify the Owner's Representative upon arrival of any material or equipment to be incorporated into the work. The Contractor shall remove protective covers or otherwise provide access in order that the Owner's Representative may inspect such items.

+ + END OF SECTION + +

SECTION 17110

PANELS

PART 1 - GENERAL

1.1 DESCRIPTION

A. SCOPE:

This section specifies requirements for vendor and manufacturer furnished electrical equipment panels and Contractor fabricated custom panels for process and mechanical equipment for the Project. Refer to Panel Schedule herein.

This section specified requirements for panels that include combination motor starters with solid-state overload device, control devices, and logic devices are included herein and shall be as specified in the Section indicated in the Panel Schedule. Provide the control and monitoring features indicated on the electrical drawings and P&IDs. Provide external lockable power disconnects as indicated on the electrical drawings.

Panels shall be arranged to separate power, control, and instrument devices and wiring. Panel shall be arranged for dedicated field wiring terminations for 600 Vac power, control, and instrument signal wiring with instrument wiring separation from power and control wiring.

Panels that contain programmable logic controllers (PLC) and operator interface stations (OIS) units shall be as indicated in the Panel Schedule and as specified herein. PLC and OIS shall comply with the specified products in Division 17. Panels that do not comply with the specified products and specified logic method, hardwired or PLC logic, shall not be accepted. Cost to retrofit the panel as specified shall be born by the panel supplier.

Refer to Electrical Section 16000 for the products and methods and adhere to 16000 where conflicts occur. Provide lockable non-fused, power disconnect for each 480Vac feeder circuit, as indicated on the drawings, for the Panels specified herein. Specific panel devices: relays, switches, digital indicators, repeat cycle, and reset timers are specified herein.

Provide Sun/Rain covers per Electrical Detail for outdoor vendor, manufacture, and custom panels. Fabricate based upon known panel dimensions or accepted submittal drawing dimensions.

B. PANEL TYPES:

The following types of panels with panel fabrication and features are specified:

Type	Panel Fabrication and Features
1	Open aluminum plate with surface mounted instruments and devices, with interconnections and accessories. Indoor or outdoor locations.

2	Panel with face-mounted instruments flush or semi-flush mounted. Panel rear is not enclosed. Indoor or outdoor locations.
3	NEMA-3R Enclosed unit with face-mounted instruments flush or semi-flush mounted on the front surface and rear access door for interior mounted instruments and equipment. Outdoor only.
4	NEMA-4X stainless steel enclosed panel. Provide breather-drain device at bottom of panel. Indoor or outdoor locations.
5	Modified NEMA-4X type of stainless steel enclosed panel with piano-hinged front door and interior hinged subpanel. Door mounted devices and combination starters per 16175. Access to interior instruments obtained by swinging open sub-panel. NEMA-4X components. Indoor or outdoor locations.
6	NEMA-1 Electronic-type 19" enclosed cabinet with rack and drawers for equipment. Front access only, installed against a wall. Front and rear access installed away from a wall. Indoor only.
7	NEMA-7 panel NEC Article-500 Class I Division-1 Hazardous Area location.
12	NEMA-12 gasketed and dust tight panels. Indoor only.

C. PANEL DESIGN:

1. GENERAL: Process and mechanical specification sections specify vendor or manufactures panels, equipment, devices, features, and instruments.

   Contractor supplied panels with dimensions, equipment, and device layout requirements including the equipment operation logic are specified on the electrical drawings.

   Hardwired logic or the use of a programmable logic controller (PLC) and Operator Interface Station using specified hardware and software shall be as indicated in the Panel Schedule.

2. CONTROL POWER DISTRIBUTION: Each panel containing 120-volt powered equipment shall be provided with a Phoenix Contact din-rail power distribution method using fuses and blown fuse indication. Provide control powered transformer sized as required for the load. Control power is restricted to 120-volt.

3. POWER SUPPLIES: Each panel containing direct current powered instruments or serving as the termination point for transmission loop powered field instruments shall contain direct current power supply system as specified herein. Panel mounted 120 VAC input and 120 VAC output UPS are specified herein and indicated in the Panel Schedule.

D. PANEL SCHEDULE:

ITEM	PANEL NUMBER	SPEC / P&ID	FEATURES	PANEL TYPE	PANEL TITLE	E. **NOTES**
1	CP-103	N/A		NEMA 4X	CP 103 Headworks Control Panel	V*

V* - Vendor / Manufacture Panel
C* - Contractor Custom Panel
1* - Programmable Logic Controller (PLC) allowed
2* - Panel mounted Operator Interface Station (OIS) allowed
3* - Hardwired control logic required

1.2 REFERENCES

This section contains references to the following documents that are part of this section as specified and modified. Where a referenced document contains references to other standards, those documents are included as references under this section as if referenced directly. In the event of conflict between the requirements of this section and those of the listed documents, the requirements of this section shall prevail.

Unless otherwise specified, references to documents shall mean the documents in effect at the time of Advertisement for Bids or Invitation to Bid or on the effective date of the Agreement if there were no Bids.

If referenced documents have been discontinued by the issuing organization, references to those documents shall mean the replacement documents issued or otherwise identified by that organization or, if there are no replacement documents, the last version of the document before it was discontinued.

Where document dates are given in the following listing, references to those documents shall mean the specific document version associated with that date, regardless of whether the document has been superseded by a version with a later date, discontinued or replaced.

Reference	Title
ASTM B209	Aluminum and Aluminum Alloy Sheet and Plate
EIA RS-310C	Racks, Panels, and Associated Equipment
Fed. Std-595A	Federal Standard Colors
NEMA 250	Enclosures for Electrical Equipment
NFPA 70	National Electric Code (NEC)
UL 94	Tests for Flammability of Plastic Materials for Parts in Devices and Appliances

This Section reference other sections with associated work specified therein:

1. Division 0 specifies Equipment and System Performance and Operational Testing with reference to Contractor's Quality Assurance Manager that is responsible for startup commissioning of system including mechanical, HVAC, electrical, and instrumentation system.

2. Section 11000 Equipment Control Devices associated with Equipment Systems.

3. Section 16000 specifies raceways, conductors, and device requirements.

1.3 SUBMITTALS

The following information shall be submitted in accordance with Division 0:

1. Dimension panel drawings of exterior panel and the interior devices. Including door-in-door construction as indicated in the Panel Schedule.

2. Panel assembly drawings including sections showing clearances between face and rear and side mounted equipment.

3. Nameplate engraving schedule: Indicate engraving by line, character size, and nameplate size. Provide equipment tag number and description.

4. Bill of Materials.

5. Schematic diagrams and panel internal wiring diagrams.

PART 2 - PRODUCTS

2.1 FABRICATION

A. GENERAL:

Panels shall be designed for the seismic requirements of paragraph 17000-1.06. Structures, equipment, and devices shall be braced to prevent damage from specified forces. Equipment panels shall not be required to function properly during periods of seismic disturbance. Equipment panels shall be capable of operation following a disturbance.

Nameplates with tag number and equipment description shall identify face-mounted instruments. Instruments shall be mounted for access to components and ease of removal. Cutouts for future equipment shall be blanked off with suitable covers. Instrument tag numbers shall be identified on the panel rear.

Face-mounted equipment shall be flush or semi-flush with flat-black escutcheons. Face-mounted instruments that are more than 6 inches deep, weigh more than 10 pounds, or exert more than a 4 ft-lb moment force on the face of the panel shall be supported underneath at the rear by a 1-inch x 1/8-inch thick steel angle.

Panels less than 60 inches high shall be provided with floor stands to raise the top of the panel to 60 inches above the floor or work platform. Panels that weigh less than 100 pounds may be wall mounted.

Panels with specified requirements including stainless steel or aluminum mounting requirements that are indicated on the project drawings or on the project details take precedence over the panel types or panel features indicated herein.

Panels listed in the process or mechanical equipment specifications shall have the features specified in this Section and the referenced Division 16 sections.

B. TYPE 1 FABRICATION:

Panels shall be aluminum plate, ASTM B209 6063 alloy, 3/8-inch thickness. Plates over 2 feet in any dimension shall be braced with 1-1/2-inch aluminum angles for rigidity. Mounting hardware shall be Type 316 stainless steel. Equipment shall be surface mounted on the aluminum plate, on the panel's front face. Rear mounting shall be only allowed as indicated in the electrical drawings. Panels shall be provided with a sun shield for outdoor locations.

C. TYPE 2 FABRICATION:

Panels shall be fabricated from 3/16-inch minimum thickness stretcher leveled sheet steel. Leading and adjoining edges shall be constructed with 2-inch turnbacks with formed radii not less than twice the material thickness. Provide with structural steel frame to provide a rigid structure. Panels shall be provided with a sun shield for outdoor locations.

D. TYPE 3 FABRICATION:

Panel shall be a NEMA 250, Type 3R enclosure fabricated from sheet steel for outdoor installation. Panel shall be provided with an interior frame or otherwise formed to provide a rigid structure. Three-point latch hardware shall be provided for doors exceeding 30 inches height. Where panel width exceeds 36 inches, multiple doors no wider than 24 inches shall be provided. Where rear door(s) are indicated on the drawings, the rear doors shall be hung on removable pin hinges and equipped with vault-type latch capable of accepting a 3/8-inch-shackle padlock.

Interior document pocket for drawings and documents. External lockable power disconnects next to panel. Combination starter within panel, as required. Overload resets shall be provided in the exterior door. Indication lights as specified or indicated. Process control alarm reset in the exterior door. Panels shall be provided with a sun shield for outdoor locations.

E. TYPE 4 FABRICATION:

Panel shall be a NEMA 250, Type 4X enclosure fabricated from stainless steel for outdoor and corrosion area locations. Panel shall be provided with an interior frame or otherwise formed to provide a rigid structure. Doors shall be hung on full-length piano-type hinges and equipped with vault-type latch capable of accepting a 3/8-inch-shackle padlock. Three-point latch hardware shall be provided for doors exceeding 30 inches height. Door width shall not exceed 30 inches. Interior document pocket for drawings and documents.

External lockable power disconnects next to panel. Combination starter within panel, as specified. Overload resets and process control alarm reset in the exterior door. Indication lights as specified or indicated.

Provide a cooling system that does not exchange panel interior air with ambient air. Cooling system shall be either a closed loop heat exchange system for the specified instrument complement and ambient temperature conditions, as indicated in the Panel Schedule. Panels shall be provided with a sun shield for outdoor locations.

F. TYPE 5 FABRICATION:

Type 5 panel shall be a modified NEMA Type 4X fabricated from 1/8-inch minimum thickness stainless steel and provided with an interior frame or formed to provide a rigid structure. Door NEMA-4X mount instruments and devices.

Interior hinged subpanel arranged to swing completely out of the enclosure. Hinges shall be full-length piano-type. Door provided with vault-type latch and three-point latch hardware if greater than 30 inches high. Door latch shall accept a 3/8-inch-shackle padlock. Door width shall not exceed 36 inches. Panels include a breather-drain in the bottom corner of the panel. Interior document pocket for drawings and documents.

External lockable power disconnects next to panel. Combination starter within panel, as specified. Overload and process control alarm resets shall be provided in the exterior door. Indication lights as specified or indicated. Panels shall be provided with a sun shield for outdoor locations.

G. TYPE 6 FABRICATION:

Type 6 panel shall be a 19-inch or 24-inch electronic-type cabinet rack in compliance with EIA RS-310C, completely enclosed with removable front and rear door. Cabinet racks shall be square-cornered, flat-sided, welded-frame construction nominally 90 inches high by 21 inches wide for 19-inch racks and 27 inches wide for 24-inch racks. Provide 3-inch high pontoon base with 120-volt ground-fault type duplex industrial grade receptacle. Interior document pocket for drawings and documents.

H. TYPE 7 FABRICATION:

NEMA-7 panel for NEC Article-500 hazardous locations. Factory conduit entries and field verify the size and number of openings required. Field installed conduit entries are prohibited. External lockable power disconnects next to panel. Combination starter within panel, as required. Overload resets shall be provided in the exterior door. Indication lights as specified or indicated. Process control alarm reset in the exterior door. Devices: NEC requirements for Class I Division 1 locations. Note: CI D2 panels may be NEMA-4X. Interior document pocket for drawings and documents. Outdoor panels require Sun/Rain Shields.

I. TYPE 12 FABRICATION:

Type 12 panel shall be NEMA 250 Type 12 dust-tight requirement for indoor locations as indicated. Panel shall be fabricated from 1/8-inch minimum thickness steel and shall be provided with an interior frame or otherwise formed to provide a rigid structure. Hinges shall be full-length piano-type. Door and subpanel shall be provided with vault-type latch and three-point latch hardware. Door latch shall accept a 3/8-inch-shackle padlock. Door width shall not exceed 36 inches. Interior document pocket for drawings and documents.

2.2 HEATING AND VENTILATING

Forced air ventilation shall be provided for panels where indicated in the Panel Schedule. Ventilation for panel racks shall be three venturi fans provided on 5-1/2-inch high-notched panel. Ventilation for consoles shall be similar to that for panel racks except EIA RS-310 mounting is not required.

Fans shall be equipped with UL-approved washable filters and provide at least 240 cfm. Noise level at 3 feet from exterior wall and 30 degrees off axis shall not exceed 60 NC units. Fans for field panels and outdoor consoles shall be thermostatically controlled.

Outdoor panels shall also be provided with thermostatically controlled space heaters. Space heater surface temperature that exceeds 120 degrees F requires an expanded metal guard. Thermostats shall be Honeywell, Penn Controls, or equal.

2.3 COATING

Panels shall be bottom coated with waterproof coatings specified.

2.4 NAMEPLATES

Machine engraved laminated black phenolic nameplates with white lettering shall be provided for panel-mounted equipment. Nameplate engraving shall be as specified and shall carry the instrument tag number in 3/32-inch minimum size lettering on the bottom line Nameplates shall be attached to the panel with a minimum of two self-tapping 316 stainless steel screws. Provide RTV sealant for nameplates for NEMA-4X stainless steel panels.

The nameplate wording may be changed without additional cost or time prior to commencement of engraving. Submit nameplate legend with the panel submittal.

Machine embossed metallic adhesive labels shall identify tag number of instruments inside panels. Nameplates shall be attached to panel surfaces, not to instruments.

2.5 PANEL INTERCONNECTION WIRING AND ELECTRICAL DEVICES

A. INTERCONNECTION WIRING:

Panel Interconnecting Wiring:

1. Panel control wiring: single conductor stranded copper NFPA No. 70 Type MTW No. 16 AWG minimum.

2. Panel instrument wiring: shielded twisted pair No.16 STP.

3. Panel power wiring: conductors specified in Division 16 and meet the NFPA No. 70 NEC requirements for power including phase, grounded, and grounding conductors.

Wiring shall be supported independently of terminations by lacing to panel support structure or by slotted flame retardant plastic wiring channels. Wiring channels shall comply with UL 94, Type V. Wiring channel fill shall not exceed 40 percent.

Wiring shall be tagged at terminations with machine printed plastic sleeves with three-part wire numbers:

1. Part-1: Prefix of the wire number shall be the instrument loop number or equipment tag number.
2. Part-2: Code letter and wire colors per the following tables.
3. Part-3: Number that identifies wires in a circuit that are electrically identical.

Code	Description 120V AC wire	Color
L	Power	Black
C	Control	Red
N	Neutral	White
PG	Ground	Green
FN	Foreign	Yellow
SP	Power supply	Black
S	Signal (positive)	Blue
SG	Signal ground	White
PG	Equipment ground	Green
FN	Foreign	Yellow

Power and control wiring shall be carried in covered channels separate from low voltage signal circuits. An interior steel barrier shall be provided between AC control devices and the electronic equipment.

Terminal blocks shall be strap screw type rated for 600 volts. Each terminal strip shall have a unique identifying alphanumeric code at one end and a vinyl-marking strip running the entire length of the terminal strip with a unique number for each terminal.

Numbers shall be machine printed and 1/8 inch high. Wire connectors shall be locking fork tongue or ring tongue insulated crimp type terminals. No more than two connections shall be made to one terminal. Terminal blocks shall be Buchanan 0621-1, Allen-Bradley 1492-F3175, or equal.

Field wiring shall be connected to separate dedicated terminal blocks in a dedicated part of the panel where the field cables enter the panel.

Fuse holders shall be drawout type. Fuses on 120V AC circuits shall have a minimum of 25,000 amperes interrupting capacity and blown fuse indicators. Fuses for 24V DC circuits shall be fast acting glass tube type rated 1/8 or 1/10 amp for 4-20 mA loops and 1/2 amp for the power supply to individual instruments. Provide Phoenix Contact products.

2.6 CONTROL POWER

A. Panels with single 480 Vac power source:
   1. Furnish each single 480 Vac power source control panel with 120 Vac control power transformer sized as required for the load plus 50-percent future load.

B. Panels with dual 480 Vac power sources: Furnish each dual 480 Vac power source control panel with a 120 Vac control power source derived from each of the power sources.
   1. Provide two control power transformers.
   2. Provide automatic transfer of the control power system to the active source when power source fail.
   3. Provide schematics for the control power system.

2.7 SURGE PROTECTION

Surge protectors shall be provided at the panel external terminal blocks for exterior field circuits. Surge protectors shall be:
1. Joslyn Model 1663-08
2. Taylor 1020FA
3. CCI Din Rail SDD-400 Series for Data or Analog Signals
4. CCI-Din Rail SDP-120 Series for 120VAC Input Power.

2.8 PANEL GROUNDING

Each panel shall be provided with two copper ground bars. One bar shall be bonded to the panel frame or sheet metal and to the facility ground system. The second (signal) ground bar shall be mounted on insulated stand-offs and shall be bonded to the frame ground bar at one point only.

Signal circuits, signal cable shields, and low-voltage DC power supply commons shall be bonded to the signal ground bar. Field wiring STP shields shall only be grounded at the signal ground bar. Test to verify that single ground point at panel signal ground bar.

Surge protectors and separately derived AC power supplies shall be bonded to the frame ground bar. Panels exceeding 30-inches width, ground bars shall be 1/4- by 1-inch copper bars extending the entire length of the panel.

2.9 DIAGRAM PROTECTION

Provide a panel-wiring diagram and schematic for each panel in a plastic bag or plastic container to avoid water damage and aging. Provide wiring diagrams in accordance with Division 0.

2.10 DIRECT-CURRENT POWER SUPPLIES

Direct-current supplies for 24-volt nominal instrumentation power shall be convection-cooled linear type, switching type prohibited. Line regulation shall be 0.4 percent for line variations from 105 to 132 volts, and load regulation shall be 0.4 percent for load variations from 0 to full load. Ripple and noise shall not exceed 100 mV peak-to-peak. Hold-up time at maximum load shall be not less than 16 milliseconds. Efficiency shall be better than 70 percent.

Power supply shall be rated for continuous duty from 0 to 50 degrees C at rated load. Output shall be electronically current limited. Over-voltage crowbar shutdown shall be provided. Power supply output voltage shall be rated 28 volts DC, adjustable plus or minus 5 percent, and shall be set to provide 26.4 volts on the panel direct current bus.

Power supplies shall be Lambda LZS series, or equal. Install Circuit Components Inc. SPD-Series Power Surge Suppresser at the 120 AC incoming power

2.11 UNINTERRUPTIBLE POWER SYSTEM (UPS)

UPS shall be on-line, computer-grade with electrical isolation including output neutral and packaged for stand-alone or enclosure mounting as indicated. Provide batteries, maintenance bypass system, and operator digital display with keypad.

The UPS system shall utilize ferroresonant transformer technology with a low frequency PWM type inverter and shall incorporate microprocessor based control and diagnostic capabilities for interactive setup, trouble shooting and maintenance.

The UPS system shall be provided with integral sealed no maintenance batteries, sized to provide full capacity backup power for 25 minutes minimum at connected load. Suitable for operation on power derived from an engine generator set.

Panel supplier shall calculate the required UPS's KVA rating that shall not be less than 150 percent of connected load. Submit load calculations, schematic diagrams, and wiring connection diagrams. Provide battery cabling and other required cabling for a complete system.

PART 3 - EXECUTION

3.1 GENERAL

Cabinets shall be mounted on channel iron sills leveled so structures will not be distorted. Panels shall be shimmed to precise alignment so doors operate without binding. Sealant shall be provided for conduit entering the panels.

Field panels and cabinets shall be mounted in compliance with paragraph 17000-3.01 B.

Floor-mounted panels except in dry control rooms or electrical equipment rooms shall be mounted on 3-1/2-inch minimum height concrete pads or grouted bases as specified. Coating shall be provided for outdoor panels in contact on concrete.

Panels shall have its Record as-built schematic, connection, and interconnection diagrams mounted behind a piece of plexiglass on the inside of the door.

Terminals and terminal blocks shall be sprayed after all terminations have been completed with a silicone resin similar to Dow Corning R-4-3117 conformal coating.

3.2 FINISH

NEMA Type 12 enclosure: White inside with ANSI 61 gray outside finish over phosphatized surfaces.

NEMA Type 4X SS: Enclosures are unpainted. Cover, sides, top, and bottom have smooth brushed finish.

3.3 OUTDOOR PANEL SHADE COVERS

Fabricate the custom aluminum panel shade cover and mount the panels facing away from the prevailing wind. Refer to the shade cover detail in the Contract Document that must be adjusted to the actual panel size.

3.4 PANEL POWER SUPPLY

Power supply and conditioning equipment shall be mounted and connected in compliance with the manufacturer's instructions unless otherwise specified.

Line side disconnect switches shall be provided for power supply and conditioning equipment. Line and load side overcurrent protection shall be provided for power supply and conditioning equipment in compliance with NFPA 70.

Small power supply and conditioning equipment may be mounted in the panel served. Larger units shall be mounted adjacent to the equipment served. Where unconditioned power is brought into control panels, it shall be enclosed in metallic raceways within the panel.

Power supply and conditioning equipment larger than 5 KVA load capacity supported from surfaces other than concrete shall be provided with sound isolators. Final raceway connections shall be a flexible conduit in compliance with Division 16.

Power supply and conditioning equipment not designed for exposed mounting shall be housed in panels in compliance with Section 17110.

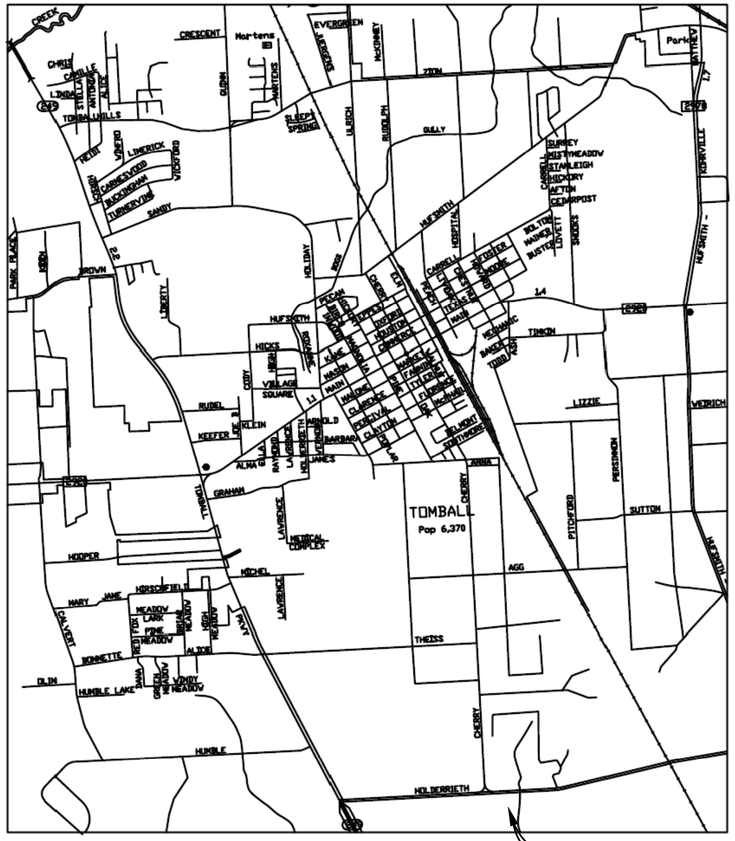
+ + END OF SECTION + +

CITY OF TOMBALL

South Wastewater Treatment Plant
Headworks Replacement
12411 Holderrieth Rd Tomball, TX 77375

VOLUME 1
FOR CONSTRUCTION

JANUARY 2011



VICINITY MAP
NTS

LOCATION MAP
NTS

STATE OF TEXAS
ROBBY DAN BRYANT
104022
LICENSED PROFESSIONAL ENGINEER
DATE: 1-13-11

VERIFY SCALE
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12530 Champion Forest Dr. #100 • Houston, TX • 832-398-7510

CITY OF TOMBALL
HEADWORKS REPLACEMENT
SOUTH WASTEWATER
TREATMENT PLANT

GENERAL
COVER SHEET

DATE
JAN 2011
PROJECT NUMBER
10-045
DRAWING NUMBER
G-001
SHEET - OF -

FILENAME: $FILEL$ PLOT DATE: 10-JAN-2011 PLOT TIME: 11:19:46 SCALE: 11:19:46

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M-201	HEADWORKS SCREENING SECTION
M-301	DETAILS
M-801	DEMOLITION
ELECTRICAL	
E-001	ELECTRICAL LEGEND AND SYMBOLS - SHEET 1
E-002	ELECTRICAL LEGEND AND SYMBOLS - SHEET 2
E-003	MCCE AND MCCF - ONE LINE DIAGRAM
E-004	HEADWORKS ELECTRICAL - PLAN EL 177.50
E-005	PLANT MONITORING SYSTEM - PLC INPUTS

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CITY OF TOMBALL
HEADWORKS REPLACEMENT
SOUTH WASTEWATER
TREATMENT PLANT

GENERAL
DRAWING INDEX

STATE OF TEXAS
ROBBY DAN BRYANT
104022
LICENSED
PROFESSIONAL ENGINEER
DATE: 1-13-11

DATE JAN 2011
PROJECT NUMBER 10-045
DRAWING NUMBER G-002
SHEET -

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PLOT DATE: 10-JAN-2011 PLOT TIME: 14:45:41 SCALE: 14:45:41

GENERAL NOTES

1. CONTRACTOR SHALL NOTIFY UTILITY COORDINATING COMMITTEE AT 800-669-8344 OR 800-392-1965 AND THE CITY OF TOMBALL AT 281-351-5484 AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION.
2. CONTRACTOR SHALL ADEQUATELY PROTECT EXISTING STRUCTURES, UTILITIES, TREES, SHRUBS AND OTHER PERMANENT OBJECTS.
3. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN A MANNER SUCH THAT TRUCKS AND OTHER VEHICLES DO NOT CREATE A DIRT NUISANCE OR SAFETY HAZARD IN ANY STREETS, PUBLIC OR PRIVATE. CLEAN UP OF STREETS SHALL BE DONE DAILY.
4. ANY AREA OF GRASS WHICH IS DISTURBED OR DUG UP DURING CONSTRUCTION SHALL BE HYDRO MULCH SEEDED.
5. NO WORK AREAS SHALL BE LEFT OPEN OVERNIGHT. ALL WORK AREAS WHICH CANNOT BE CLOSED OVERNIGHT SHALL BE COVERED WITH STEEL SHEETING, WITH FLASHING YELLOW LIGHTS. THE EXCAVATION AREA MUST BE WELL PROTECTED AND CLEARLY BARRICADE WORK TO PREVENT ENTRY.
6. ALL WORK AREAS MUST BE COMPLETELY CORDONED OFF WITH A MINIMUM OF TWO STRANDS OF YELLOW PLASTIC CONSTRUCTION TAPE, ACCEPTABLE TO THE CITY. THE TAPE SHALL BE SUPPORTED WITH ENOUGH INTERMEDIATE SUPPORTS TO AVOID EXCESSIVE SAGGING.
7. EXISTING CONCRETE, GRATING, HANDRAIL, STAIRS PIPING ECT. DAMAGED OR REMOVED DURING CONSTRUCTION BY THE CONTRACTOR SHALL BE REPLACED IN KIND BY THE CONTRACTOR AT HIS EXPENSE.
8. CONTRACTOR SHALL MAINTAIN OPERATOR ACCESS TO FUNCTIONING AREAS OF THE PLANT AT ALL TIMES
9. CONTRACTOR SHALL PROVIDE THE CITY OF TOMBALL ONE SET OF (RECORD) DRAWINGS AS PER SPECIFICATIONS.
10. ALL EXISTING UTILITIES ARE NOT GUARANTEED TO BE COMPLETE OR DEFINITE, BUT WERE OBTAINED FROM THE BEST INFORMATION AVAILABLE. CONTRACTOR HAS SOLE RESPONSIBILITY FOR FIELD VERIFICATION OF ALL EXISTING FACILITIES SHOWN ON DRAWINGS. CONTRACTOR SHALL COORDINATE ALL CONFLICTS.
11. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND STATE OF TEXAS LAW CONCERNING CONSTRUCTION ACCESS AND SAFTY.
12. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE FINAL DRAFT OF STORMWATER MANAGEMENT HANDBOOK FOR CONSTRUCTION ACTIVITIES AS PREPARED BY HARRIS COUNTY/HCFCD, AND IN COMPLIANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS.
13. CONDITION OF THE FACILITIES, UPON COMPLETION OF JOB, SHALL BE AS GOOD OR BETTER THAN THE CONDITION PRIOR TO STARTING WORK. THE CONTRACTOR SHALL RESTORE ALL GRADES AND LANDSCAPING TO PRE-CONSTRUCTION CONDITIONS AND RE-ESTABLISH TURF AREAS DAMAGED BY THE CONSTRUCTION ACTIVITIES.
14. ALL DIMENSIONS SHOWN ARE APPROXIMATE AND NEED TO BE FIELD VERIFIED BY THE CONTRACTOR, HORIZONTAL AND VERTICAL ALIGNMENT CHANGES ARE TO BE APPROVED BY THE CITY.
15. CONTRACTOR TO BE RESPONSIBLE TO OBTAIN ALL REQUIRED CONSTRUCTION PERMITS INCLUDING HARRIS COUNTY AND CITY OF TOMBALL.
16. CONTRACTOR SHALL REMOVE ALL TRASH, EXCESS MATERIAL, DEBRIS, ETC. FROM THE SITE UPON COMPLETION OF THE PROJECT PRIOR TO INSPECTION AND APPROVAL BY THE APPROVING AGENCIES.
17. TEXAS LAW ARTICLE 1436C, PROHIBITS ALL ACTIVITIES IN WHICH PERSONS OR EQUIPMENT MAY COME WITHIN 6 FEET OF ENERGIZED OVERHEAD POWER LINES, AND FEDERAL REGULATION, TITLE 29, PART 1910.190(1) AND PART 1926.44(A)(15) REQUIRE A MINIMUM CLEARANCE OF 10 FEET FROM THESE FACILITIES. THE ABOVE LAWS CARRY BOTH CRIMINAL AND CIVIL LIABILITIES, WITH CONTRACTORS AND OWNERS BEING LEGALLY RESPONSIBLE FOR THE SAFETY OF WORKERS UNDER THESE LAWS. IF YOU OR YOUR COMPANY MUST WORK NEAR OVERHEAD POWER LINES, CALL 713-207-777 FOR THE LINES TO BE DEENERGIZED AND/OR MOVED AT YOUR EXPENSE.

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CITY OF TOMBALL
HEADWORKS REPLACEMENT
SOUTH WASTEWATER
TREATMENT PLANT

GENERAL
GENERAL NOTES

STATE OF TEXAS
ROBBY DAN BRYANT
104022
LICENSED
PROFESSIONAL ENGINEER
DATE: 1-13-11

DATE JAN 2011
PROJECT NUMBER 10-045
DRAWING NUMBER G-003
SHEET -

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ABBREVIATIONS

@	AT
AB	ANCHOR BOLT, AGGREGATE BASE
AC	ASPHALTIC CONCRETE
ACI	AMERICAN CONCRETE INSTITUTE
ADD	ADDITIONAL
ADH AB	ADHESIVE ANCHOR BOLT
ADJ	ADJACENT, ADJUSTABLE
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AHP	AIR: HIGH PRESSURE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AL, ALUM	ALUMINUM
ALP	AIR LOW PRESSURE
ALTN	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
APVD	APPROVED
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
ARCH, A	ARCHITECTURAL
ARV	AIR RELEASE VALVE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AUTO	AUTOMATIC
AUX	AUXILIARY
AV	AIR/VACUUM ASSEMBLY
AVE	AVENUE
AWG	AMERICAN WIRE GAGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
B	BORING
BC	BEGIN CURVE, BOTTOM OF CURB
BF	BLIND FLANGE, BOTTOM FACE
BFD	BUTTERFLY VALVE DAMPER
BFV	BUTTERFLY VALVE
BLDG	BUILDING
BLM	BUREAU OF LAND MANAGEMENT
BM	BENCH MARK, BEAM
BO	BLOW OFF
BOO	BOTTOM OF OPENING
BOT	BOTTOM
BRG	BEARING
BV	BALL VALVE
BVC	BEGINNING OF VERTICAL CURVE
BYP	BYPASS
C to C, CC	CENTER TO CENTER
C	CHANNEL (BEAM)
CAA/ARV	COMBINATION AIR ADMISSION/ AIR RELEASE VALVE
CARV	COMBINATION AIR RELEASE VALVE
CATH	CATHODIC PROTECTION
CATV	CABLE TELEVISION
CB	CATCH BASIN
CCP	CONCRETE CYLINDER PIPE
CCS	CENTRAL CONTROL SYSTEM
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHEM	CHEMICAL
CI	CAST IRON
CIGC	CAST IRON GROOVED COUPLING
CIMJ	CAST IRON MECHANICAL JOINT
CIP	CAST IRON PIPE
CIRJ	CAST IRON RESTRAINED JOINT
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION JOINT, CONTRACTION JOINT
CLDIP	CEMENT-LINED DUCTILE IRON PIPE
CLG	CEILING
CLR	CLEAR, CLEARANCE
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CL	CENTERLINE
CML, CSP	CONCRETE MORTAR LINED AND COATED STEEL PIPE
CMLSP	CEMENT MORTAR LINED STEEL PIPE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL	COLUMN
COM	COMMUNICATION
COMB	COMBINED
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS, CONTINUATION
COORD	COORDINATE
CU	COPPER
CPLG	COUPLING
CTD	CENTERED
CTR	CENTER
CU FT	CUBIC FOOT
CU IN	CUBIC INCH
CU YD	CUBIC YARD
CULV	CULVERT
CV	CHECK VALVE
°C	CELSIUS
d	PENNY
DBA	DEFORMED BAR ANCHOR
DR	DRAIN
DBL	DOUBLE
DEC	DECANT
DET	DETAIL
DF	DOUGLAS FIR/LARCH
DI	DROP INLET, DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIL	DILUTE
DIM	DIMENSION
DIMJ	DUCTILE IRON MECHANICAL JOINT
DIP	DUCTILE IRON PIPE
DIPPL	DUCTILE IRON PIPE, POLYETHYLENE LINED
DIR	DIRECTION
DIST	DISTANCE
DN	DOWN
do	DITTO
DWG	DRAWING
E	EAST, ELECTRIC, ELECTRICAL
EA	EACH
EC	END CURVE
ECC	ECCENTRIC
EF	EACH FACE, EXHAUST FAN
EFL	EFFLUENT
EJ	EXPANSION JOINT
EL	ELEVATION
ELB, ELL	ELBOW
ELC	ELECTRICAL LOAD CENTER
ELEC	ELECTRIC, ELECTRICAL
ENGR	ENGINEER
EO	EMERGENCY OVERFLOW
EP	EDGE OF PAVEMENT
EQL SP	EQUALLY SPACED
EQPT	EQUIPMENT
ESC	EROSION SEDIMENT CONTROL
ERW	EFFLUENT REUSE WATER
ESA	ENVIRONMENTALLY SENSITIVE AREA
EVC	END OF VERTICAL CURVE
EW	EACH WAY
EWEF	EACH WAY, EACH FACE
EXC	EXCAVATE
EXP	EXPOSED, EXPANSION
EXP JT	EXPANSION JOINT
EXST	EXISTING
FB	FLAT BAR
FC	FLEXIBLE COUPLING
FCA	FLANGED COUPLING ADAPTER
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
FDA	FLOOR DRAIN W/INTEGRAL TRAP
FDN	FOUNDATION
FES	FLARED END SECTION
FEXT	FIRE EXTINGUISHER
FF	FINISH FLOOR
FG	FINISH GRADE
FHY	FIRE HYDRANT
FIG	FIGURE
FL	FLOOR, FLOW LINE
FLG	FLANGE
FLH	FLAT HEAD
FLL	FLOW LINE
FLTR	FILTER
FNSH	FINISH
FOC	FACE OF CONCRETE
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FOOT OR FEET
FTG	FOOTING
FWD	FORWARD
°F	DEGREE FAHRENHEIT
G	GAS
GA	GAGE
GAL	GALLON
GALV	GALVANIZED
GB	GRADE BREAK
GC	GROOVED COUPLING
GCO	GRADE CLEAN OUT
GCF	GROOVED COUPLING FITTING
GE	GROOVED END
GL	GLASS
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRTG	GRATING
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
GVL	GRAVEL
GW	GROUND WATER
HD	HUB DRAIN
HDPE	HIGH DENSITY POLYETHLENE PIPE
HDR	HEADER
HDW	HARDWARE
HGT	HEIGHT
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPT	HIGH POINT
HR	HANDRAIL
HSS	HOLLOW STRUCTURE STEEL
HV	HOSE VALVE
HWY	HIGHWAY
HYD	HYDRANT
I&C	INSTRUMENTATION & CONTROL
ID	INSIDE DIAMETER
IF	INSIDE FACE
IN	INCH
INFL	INFLUENT
INSTM	INSTRUMENTATION
INSUL	INSULATE, INSULATION
INV	INVERT
INVERT EL	INVERT ELEVATION
IP	IRON PIPE
IR	IRON ROD
JT	JOINT
KIP	THOUSAND POUNDS
KW	KILOWATT
L	LEFT, ANGLE, LENGTH
LAB	LABORATORY
LAT'L	LATERAL
LB	POUNDS
LB/CU FT	POUNDS PER CUBIC FOOT
LF	LINEAR FEET
LG	LONG
LONG	LONGITUDINAL
LP	LOW POINT
LR	LONG RADIUS
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCJ	MASONRY CONTROL JOINT
MECH	MECHANICAL
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MPH	MILES PER HOUR
MSNRY	MASONRY
MSP	MILL STEEL PIPE, MANUAL OF STANDARD PRACTICE
MTL	MATERIAL
MWS	MAXIMUM WATER SURFACE
N	NORTH
NC	NORMALLY CLOSED
NE	NORTHEAST
NIC	NOT IN CONTRACT
NO	NUMBER, NUMBERING
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
NW	NORTHWEST
OC	ON CENTER
OD	OUTSIDE DIAMETER, OVERFLOW DRAIN
OF	OUTSIDE FACE, OVERFLOW
OFR	OVERFLOW RETURN
OG	ORIGINAL GROUND
OHE	OVERHEAD ELECTRIC
OMRF	ORDINARY MOMENT RESISTING FRAME
O TO O	OUT TO OUT
OPNG	OPENING
OPP	OPPOSITE
OZ	OUNCE
PC	POINT OF CURVE
PE	PLAIN END, POLYETHYLENE AND PERMANENT EASEMENT
PENT	PENETRATION
PI	POINT OF INTERSECTION
PJF	PREMOLDED JOINT FILLER
PL	PLATE, PROPERTY LINE
PLYWD	PLYWOOD
POB	POINT OF BEGINNING
POC	POINT OF CONNECTION
POE	POINT OF ENDING
PP, P&P	PLAN AND PROFILE, POWER POLE
PPM	PARTS PER MILLION
PRC	POINT OF REVERSE CURVE
PRCST	PRECAST
PREFAB	PREFABRICATED
PREFAB	PREFABRICATED
PRESS	PRESSURE
PRC	POINT OF REVERSE CURVE
PRI	PRIMARY
PROP	PROPERTY
PRV	PRESSURE RELEASE VALVE
PSF	POUNDS PER SQUARE FOOT
PS	PUMP STATION
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH, GAUGE
PT	POINT OF TANGENCY
P.U.E.	PUBLIC UTILITY EASEMENT
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE PLASTIC POINT OF VERTICAL CURVE
PVCGS	POLYVINYL CHLORIDE PLASTIC-GRAVITY SEWER TYPE
PVCW	POLYVINYL CHLORIDE PLASTIC-WATER DISTRIBUTION SERVICE TYPE
PVMT	PAVEMENT
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY, PRIVATE
PW	POTABLE WATER
R, RAD	RADIUS
RC	REINFORCED CONCRETE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD, ROOF DRAIN
RDCR	REDUCER
REF	REFER OR REFERENCE
REINF	REINFORCED, REINFORCING, REINFORCE
REQD	REQUIRED
RJ	RESTRAINED JOINT
RLS	RUBBER LINED STEEL
RM	ROOM
RMJ	RESTRAINED MECHANICAL JOINT
RO	ROUGH OPENING
RP	RADIUS POINT
R/R	REMOVE AND REPLACE
RST	REINFORCING STEEL
RT	RIGHT
RTN	RETURN
RV	ROOF VENT
RW	RAW WATER
R/W	RIGHT-OF-WAY
S	!-BEAM, SOUTH, SLOPE
S =	SLOPE EQUALS
SA	SAMPLE
SAT	SUSPENDED ACOUSTIC TILE
SC	SCUM
SCFH	STANDARD CUBIC FEET PER HOUR
SCFM	STANDARD CUBIC FEET PER MINUTE
SCH	SCHEDULE
SD	STORM DRAIN
SE	SOUTHEAST
SEC	SECONDARY
SECT	SECTION
SH	SHEET
SIM	SIMILAR
SLD	SLUDGE
SLP	SLOPE
SOLN	SOLUTION
SP	SPACE OR SPACES
SPD	SUMP PUMP DRAIN
SPEC	SPECIFICATIONS
SPLY	SUPPLY
SQ	SQUARE
SQ FT	SQUARE FOOT
SQ IN	SQUARE INCH
SS	SANITARY SEWER
SSH	SAFETY SHOWER
SST	STAINLESS STEEL
ST	STRAIGHT, STREET
STA	STATION
STD	STANDARD
STIF	STIFFENER
STL	STEEL, STEEL PIPE
STLS	STEEL PIPE (SPECIAL)
STR	STRAIGHT
STRL	STRUCTURAL
STRUCT	STRUCTURE
SUBFL	SUBFLOOR
SUSP	SUSPEND
SW	SOUTHWEST
SYMM	SYMMETRICAL
T	TANGENT, TELEPHONE LINE, TOP
TBG	TUBING
T&B	TOP AND BOTTOM
TC	TOP OF CURB, TOP OF CONCRETE
TCE	TEMPORARY CONSTRUCTION EASEMENT
TDH	TOTAL DYNAMIC HEAD
TECH	TECHNICAL
TEL	TELEPHONE
TEMP	TEMPORARY, TEMPERATURE
TF	TOP FACE
T&G	TONGUE AND GROOVE
THD	THREAD
THK	THICK
TP	TURNING POINT, TEST PIT
TRANS	TRANSITION
TRANSV	TRANSVERSE
TS	TUBE STEEL
TST	TOP OF STEEL
TT	THRUST TIE
TW	TOP OF WALL
TWS	TRACER WIRE STATION
TYP	TYPICAL
t, T	THICKNESS
UBC	UNIFORM BUILDING CODE
UD	UNDERDRAIN
UG	UNDERGROUND
UH	UNIT HEATER
UNK	UNKNOWN
UNO	UNLESS NOTED OTHERWISE
V	VENT, VOLT, VALVE
VAC	VACUUM
VAR	VENT ACID RESISTANT
VC	VERTICAL CURVE
VERT	VERTICAL
VPI	VERTICAL POINT OF INTERSECTION
VPS	VENEER PLASTER SYSTEM
VTR	VENT THRU ROOF
W/	WITH
W	WIDE FLANGE (BEAM), WEST, WATER
WC	WATER CLOSET
WD	WOOD
WH	WATER HEATER
WM	WATER METER
WR	WATER RESISTANT
WS	WATER SURFACE, WATER STOP
W SH ST	WEATHERING SHEET STEEL
WSP	WELDED STEEL PIPE
WT	WATER TIGHT
WTR	WATER
WW	WASHWATER
WWF	WELDED WIRE FABRIC
YD	YARD

NOTES

1. FOR ELECTRICAL AND INSTRUMENTATION ABBREVIATIONS, SEE ELECTRICAL AND INSTRUMENTATION DRAWINGS.
2. CONTACT THE ENGINEER FOR ABBREVIATIONS NOT LISTED.
3. THIS IS A STANDARD LEGEND SHEET, THEREFORE, SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND MAY NOT BE UTILIZED ON THIS PROJECT.

STATE OF TEXAS
ROBBY DAN BRYANT
104022
LICENSED PROFESSIONAL ENGINEER
DATE: 1-13-11

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DESIGN DS
DRAWN DS
CHECKED JC
APPROVED JM

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12530 Champion Forest Dr. #100 • Houston, TX • 832-398-7510

CITY OF TOMBALL
HEADWORKS REPLACEMENT
SOUTH WASTEWATER TREATMENT PLANT

GENERAL
ABBREVIATIONS

DATE JAN 2011
PROJECT NUMBER 10-045
DRAWING NUMBER G-004
SHEET -

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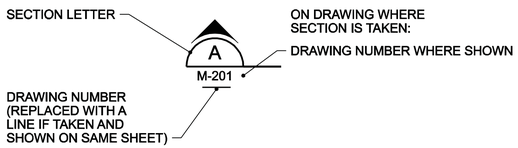
FILENAME: $FILEL$ PLOT DATE: 10-JAN-2011 PLOT TIME: 11:22:40 SCALE: 11:22:40

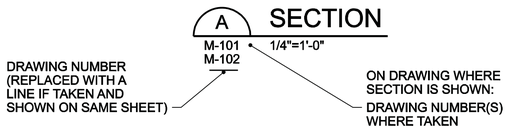
DISCIPLINE

LETTER	DISCIPLINE
G	GENERAL
D	DEMOLITION
C	CIVIL YARD
A	ARCHITECTURAL
S	STRUCTURAL
M	MECHANICAL
H	HEATING, VENTILATION AND COOLING
P	PLUMBING
E	ELECTRICAL
N	INSTRUMENTATION

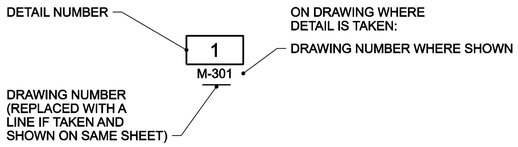
DRAWING NUMBER

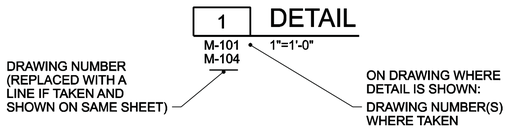
SECTION



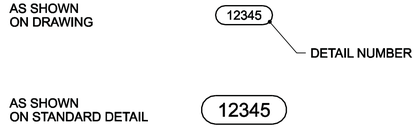


DETAIL





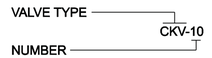
STANDARD DETAIL



NOTES:

1. STANDARD DETAIL CALLOUTS ARE SHOWN TO INDICATE DETAIL REQUIRED AT SPECIFIC LOCATIONS. DETAILS ARE NOT CALLED OUT AT ALL LOCATIONS. WHERE A STANDARD DETAIL CALLOUT IS NOT SHOWN, THE CONTRACTOR SHALL USE THE STANDARD DETAIL MOST APPLICABLE AND CONSISTENT WITH OTHER WORK UNDER THIS CONTRACT.

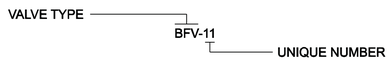
STANDARD VALVE AND OPERATOR



NOTES:

1. SEE SPECIFICATION SECTION 15200.

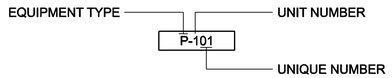
UNIQUE VALVE AND OPERATOR



NOTES:

1. SEE SPECIFICATION SECTION 15200 FOR VALVE SCHEDULE.

EQUIPMENT DESIGNATION



LINE TYPE APPEARANCE

———	BLACK	NEW 'ON' DISCIPLINE
———	LIGHT OR MEDIUM GRAY OR SCREENED	EXISTING 'ON' OR 'OFF' DISCIPLINE
———	DARK GRAY	NEW 'OFF' DISCIPLINE

GENERAL SYMBOLOGY

	STRUCTURE OR EQUIPMENT TO BE REMOVED OR DEMOLISHED

STATE OF TEXAS
ROBBY DAN BRYANT
104022
LICENSED PROFESSIONAL ENGINEER
DATE: 1-13-11

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY.

DESIGN X
DRAWN X
CHECKED XJM
APPROVED JM

WATERWORKS ENGINEERS.

CITY OF TOMBALL
HEADWORKS REPLACEMENT
SOUTH WASTEWATER
TREATMENT PLANT

GENERAL

STANDARD DESIGNATIONS

DATE JAN 2011
PROJECT NUMBER 10-045
DRAWING NUMBER G-005
SHEET - OF -

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FILENAME: $FILEL$ PLOT DATE: 10-JAN-2011 PLOT TIME: 11:23:16 SCALE: 11:23:16

PIPE AND FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		EXISTING PIPE (SCREENED)
		NEW PIPE
		EXISTING PIPE TO BE ABANDONED
		EXISTING PIPE TO BE REMOVED
		WELDED JOINT
		GROOVED END JOINT - FLEXIBLE
		GROOVED END JOINT - RIGID
		FLANGED JOINT
		MECHANICAL JOINT
		HUB & SPIGOT JOINT (RUBBER GASKET PUSH-ON)
		BALL JOINT
		FLANGE COUPLING ADAPTER
		FLEXIBLE COUPLING
		FLEXIBLE COUPLING WITH THRUST TIES
		DISMANTLING JOINT
		STEEL BELLOWS EXPANSION JOINT
		ELASTOMER BELLOWS EXPANSION JOINT
		ELBOW - 90 DEGREE
		ELBOW UP - 90 DEGREE
		ELBOW DOWN - 90 DEGREE
		ELBOW - 45 DEGREE
		ELBOW UP - 45 DEGREE
		ELBOW DOWN - 45 DEGREE
		TEE
		TEE UP
		TEE DOWN
		CROSS
		LATERAL
		LATERAL UP
		LATERAL DOWN
		REDUCER - CONCENTRIC

PIPE AND FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		REDUCER - ECCENTRIC
		UNION
		BLIND FLANGE
		PLUG
		CAP

VALVE SYMBOLS

DOUBLE LINE	SINGLE LINE	
		GATE
K	K	KNIFE GATE
		BUTTERFLY
		GLOBE
		BALL
V	V	VEE BALL
		PLUG OR COCK
	SEAT PORT	ECCENTRIC PLUG WITH REQUIRED SEAT LOCATION
FP	FP	FULL PORT PLUG
		NEEDLE
		DIAPHRAGM
		PINCH VALVE
		SWING CHECK
		DOUBLE DISK OR SILENT CHECK
		BALL CHECK
		HOSE VALVE
	X	NON FREEZE HOSE VALVE X=NUMBER IN SPECIFICATIONS
	X	NON FREEZE HOSE VALVE WITH HOSE RACK X=NUMBER IN SPECIFICATIONS
	S	SAMPLE
		MUD
		PRESSURE RELIEF
		AIR AND OR VACUUM RELEASE
	REGULATED SIDE	PRESSURE CONTROL
		MULTI-PORT VALVE ARROWS INDICATE FLOW PATTERN. SEAT PORTS ARE IMPLIED BY INDICATED FLOW PATTERN. BALL VALVE SHOWN. FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN.
		FIRE HYDRANT
		CATHODIC PROTECTION TEST STATION
		CATHODIC PROTECTION ANODE

FLOW METERS

DOUBLE LINE	SINGLE LINE	
		MAGMETER
		PROPELLER METER
		INSERTION METER

PUMPS

	METERING
	DIAPHRAGM
	CENTRIFUGAL
	PERISTALTIC

MIXERS

	STATIC MIXER

ACTUATORS

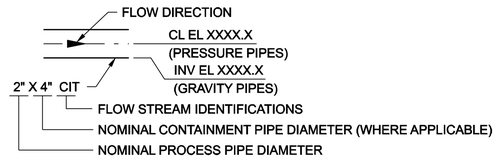
P	PNUEMATIC
M	MOTORIZED
S	SOLENOID

MISCELLANEOUS PIPING SYMBOLS

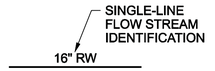
	STRAINER
	SIGHT GLASS
	FLEXIBLE (ELASTOMER) PIPE CONNECTION
	GAUGE WITH COCK
	THERMOMETER
	ROTAMETER
A	GALVANIC ANODE
XX	AIR SET XX = SUPPLY PRESSURE - PSIG
PS 26-1-2	TYPICAL INSTRUMENT SYMBOL (SEE I&C LEGEND)
	DRAIN
	DOUBLE CONTAINMENT PIPE

PIPING DESIGNATION

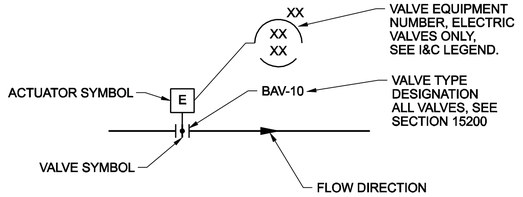
DOUBLE LINE



SINGLE LINE



VALVE DESIGNATIONS



NOTES

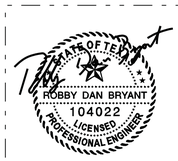
1. ELECTRIC VALVE SHOWN, MANUAL VALVE SIMILAR.

NOTES

1. ONLY FLANGED END CONNECTIONS ARE SHOWN HERE FOR DOUBLE LINE FITTINGS. FITTINGS WITH OTHER END PATTERNS ARE SHOWN SIMILARLY ON THE CONSTRUCTION DRAWINGS. ALSO SEE PIPING SPECIFICATIONS AND THE PIPING SCHEDULE.
2. SYMBOLS SHOWN HERE FOR SINGLE LINE FITTINGS ARE GENERIC ONLY. REFER TO PIPING SPECIFICATIONS FOR SPECIFIC END CONNECTIONS FOR SINGLE LINE PIPE AND FITTINGS.

GENERAL PIPING NOTES

1. LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS. MINIMUM COVER SHALL BE 36 INCHES UNLESS OTHERWISE SHOWN.
2. SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
3. LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN IS ONLY APPROXIMATE. FINAL SUPPORT REQUIREMENTS SHALL BE DETERMINED IN THE FIELD AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. MAXIMUM SPACING SHALL BE AS SPECIFIED.
4. APPROPRIATE STANDARD WALL PIPE DETAIL SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL.
5. ALL FLEXIBLE CONNECTORS OR FLANGED COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST TIES, BLOCKS, OR ANCHORS, UNLESS OTHERWISE NOTED. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
6. SYMBOLS, LEGENDS, AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE DRAWINGS, WHEREVER APPLICABLE. ALL OF THE VARIOUS APPLICATIONS ARE NOT NECESSARILY USED IN THE PROJECT.
7. ALL PIPING SPECIFIED TO BE PRESSURE TESTED, EXCEPT FLANGED, WELDED, GROOVED END OR SCREWED PIPING, SHALL BE PROVIDED WITH THRUST PROTECTION AT ALL DIRECTION CHANGES, UNLESS OTHERWISE NOTED. SEE THRUST DETAILS AND NOTES ON DRAWINGS.
8. NUMBER AND LOCATION OF UNIONS SHOWN ON DRAWINGS ARE ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
9. THE CONTRACTOR FOR THIS PROJECT IS RESPONSIBLE FOR COORDINATING AND PERFORMING THE CONNECTION OF THE PIPING AND ASSOCIATED APPURTENANCES INSTALLED UNDER THIS CONTRACT TO BOTH THE EXISTING PIPING AND FACILITIES.
10. PRIOR TO SUBMITTING PIPING DRAWINGS FOR ANY NEW PIPE THAT IS TO CONNECT TO OR CROSS AN EXISTING PIPE OR STRUCTURE, THE CONTRACTOR SHALL EXPOSE THE EXISTING PIPE OR STRUCTURE TO VERIFY ITS EXACT LOCATION, SIZE, MATERIALS, AND INVERT ELEVATIONS.
11. COMPONENTS SHOWN WITH A DOUBLE ASTERISK (**) ARE PART OF A PACKAGE SYSTEM. SEE EQUIPMENT SPECIFICATIONS.



DATE: 1-13-11

VERIFY SCALE
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DESIGN RB
DRAWN DS
CHECKED X
APPROVED JM

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12530 Champion Forest Dr. #100 • Houston, TX • 832-398-7510

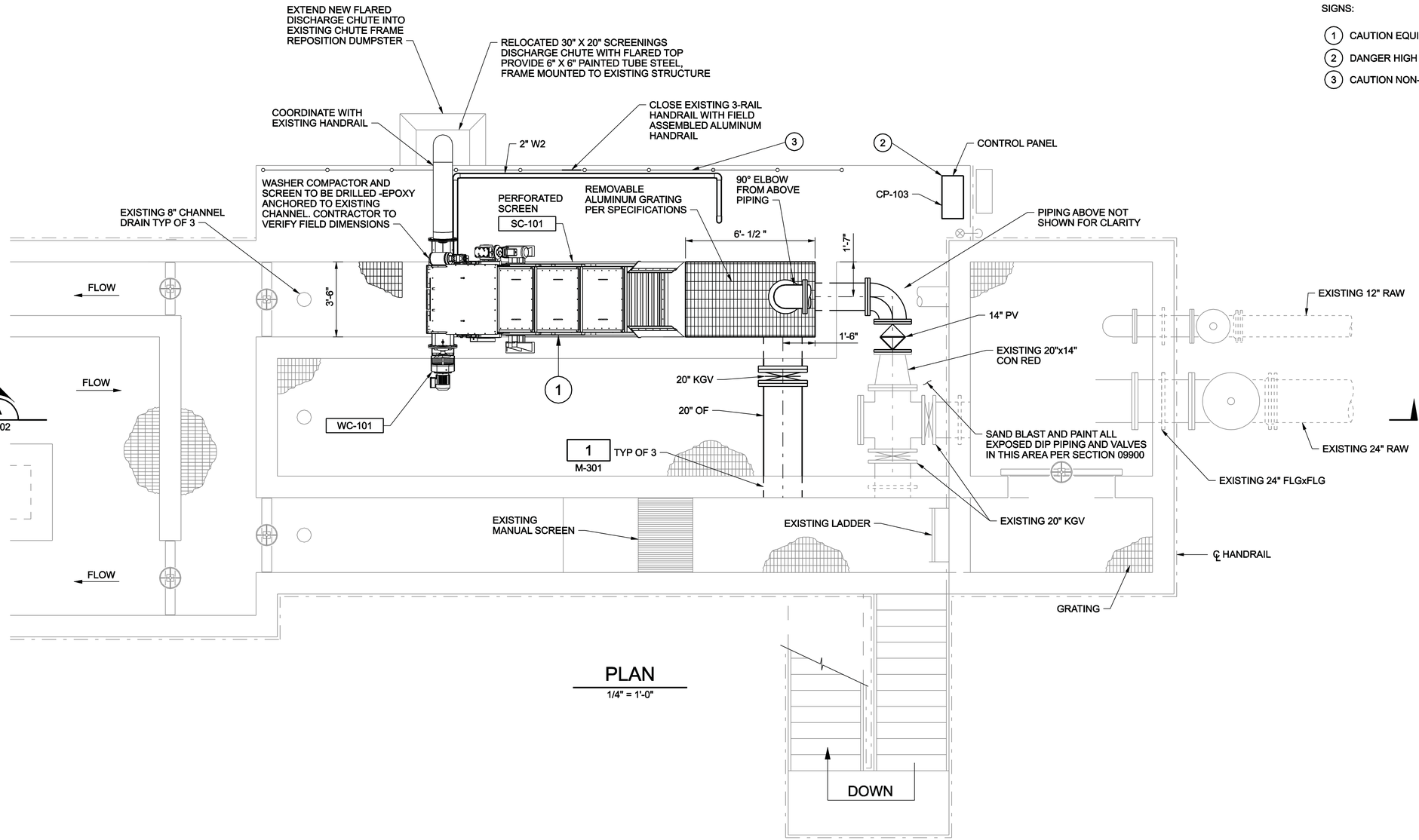
CITY OF TOMBALL
HEADWORKS REPLACEMENT
SOUTH WASTEWATER TREATMENT PLANT

MECHANICAL

LEGEND

DATE JAN 2011
PROJECT NUMBER 10-045
DRAWING NUMBER M-001
SHEET - OF -

FILENAME: $FILEL$ PLOT DATE: 10-JAN-2011 PLOT TIME: 11:24:23 SCALE: 11:24:23



PLAN

1/4" = 1'-0"

SIGNS:

1. CAUTION EQUIPMENT STARTS AUTOMATICALLY
2. DANGER HIGH VOLTAGE
3. CAUTION NON-POTABLE WATER DO NOT DRINK

2 0 2 4 FEET

SCALE 3/8"=1'-0"

DATE: 1-13-11

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

DESIGN X | DRAWN X | CHECKED X | APPROVED JM

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CITY OF TOMBALL
HEADWORKS REPLACEMENT
SOUTH WASTEWATER TREATMENT PLANT

MECHANICAL

HEADWORKS SCREENING PLAN

DATE: JAN 2011
PROJECT NUMBER: 10-045
DRAWING NUMBER: M-101
SHEET - OF -

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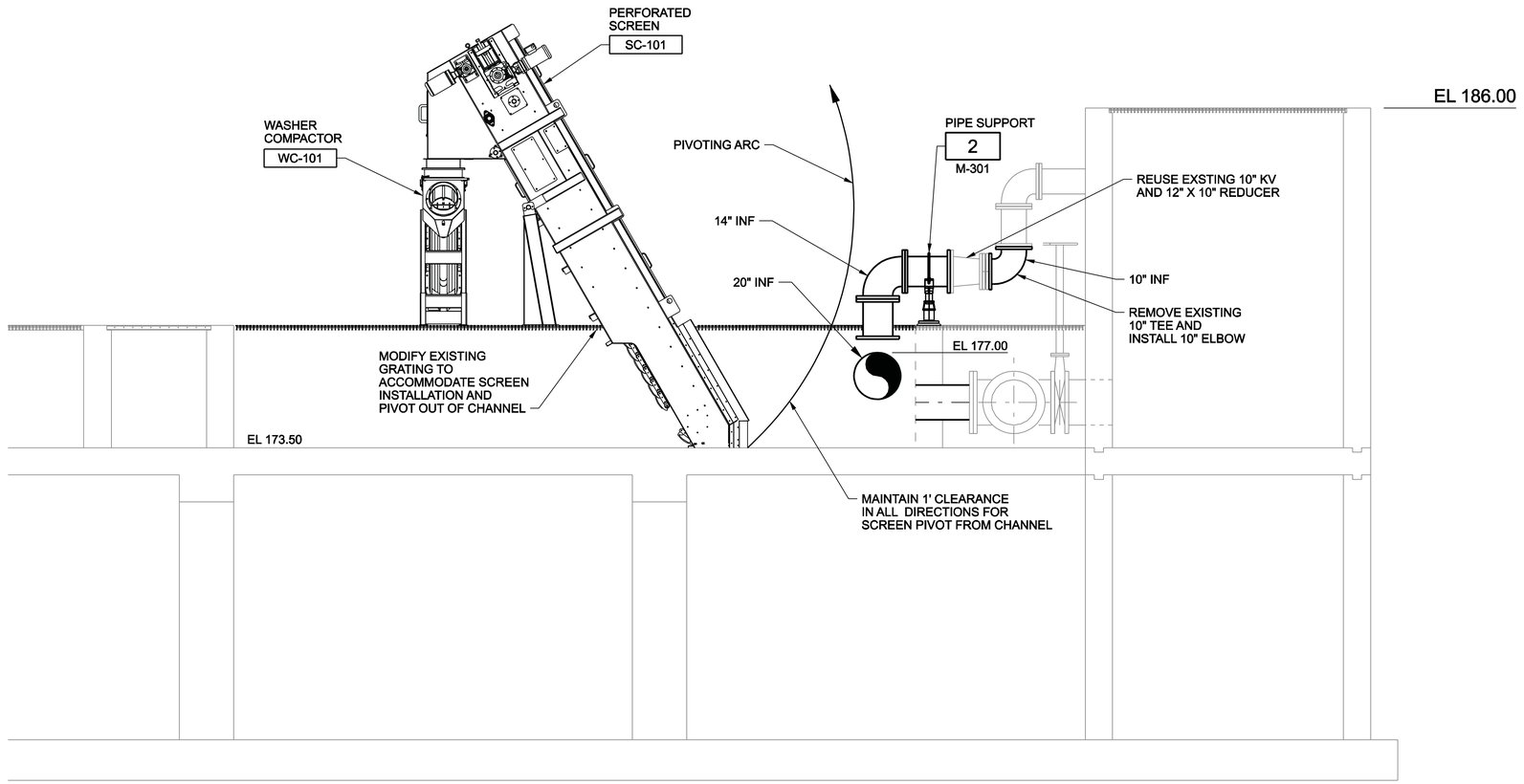
FILENAME: $FILEL$ PLOT DATE: 10-JAN-2011 PLOT TIME: 11:26:30 SCALE: 11:26:30



A SECTION
M-101 1/4"= 1'-0"

2 0 2 4 FEET
SCALE 3/8"=1'-0"

STATE OF TEXAS
ROBBY DAN BRYANT
104022
LICENSED PROFESSIONAL ENGINEER
DATE: 1-13-11

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

DESIGN X
DRAWN X
CHECKED X
APPROVED JM

WATERWORKS ENGINEERS
12530 Champion Forest Dr. #100 • Houston, TX • 832-398-7510

CITY OF TOMBALL
HEADWORKS REPLACEMENT
SOUTH WASTEWATER
TREATMENT PLANT

MECHANICAL
HEADWORKS SCREENING
SECTION

DATE JAN 2011
PROJECT NUMBER 10-045
DRAWING NUMBER M-201
SHEET - OF -

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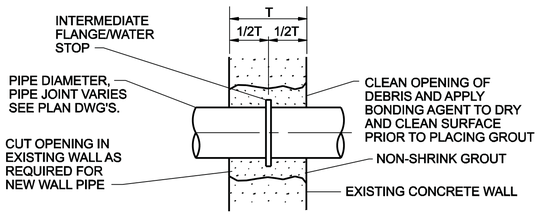
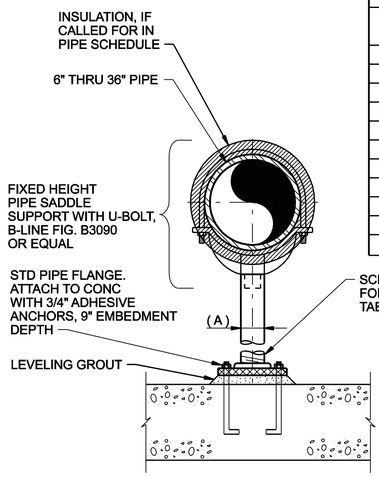
FILENAME: $FILEL$ PLOT DATE: 10-JAN-2011 PLOT TIME: 11:27:08 SCALE: 11:27:08



EXISTING CONCRETE WALL
PIPE PENETRATION

1 DETAIL
M-101 NTS



DIMENSION TABLE		
PIPE SIZE	(A)	(B)
6"	3"	2'-0"
8"	3"	2'-0"
10"	3"	2'-0"
12"	3"	2'-0"
14"	3"	2'-0"
16"	3"	2'-0"
18"	4"	3'-0"
20"	4"	3'-0"
24"	4"	3'-0"
30"	4"	4'-0"
36"	4"	4'-0"

FIXED-HEIGHT SADDLE PIPE
SUPPORT WITH CONCRETE PAD

2 DETAIL
M-201 NTS

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

DESIGN X
DRAWN X
CHECKED X
APPROVED JM

WATER WORKS ENGINEERS
12530 Champion Forest Dr. #100 • Houston, TX • 832-398-7510

CITY OF TOMBALL
HEADWORKS REPLACEMENT
SOUTH WASTEWATER
TREATMENT PLANT

MECHANICAL
DETAILS

STATE OF TEXAS
ROBBY DAN BRYANT
104022
LICENSED
PROFESSIONAL ENGINEER
DATE: 1-13-11

DATE
JAN 2011
PROJECT NUMBER
10-045
DRAWING NUMBER
M-301
SHEET - OF -

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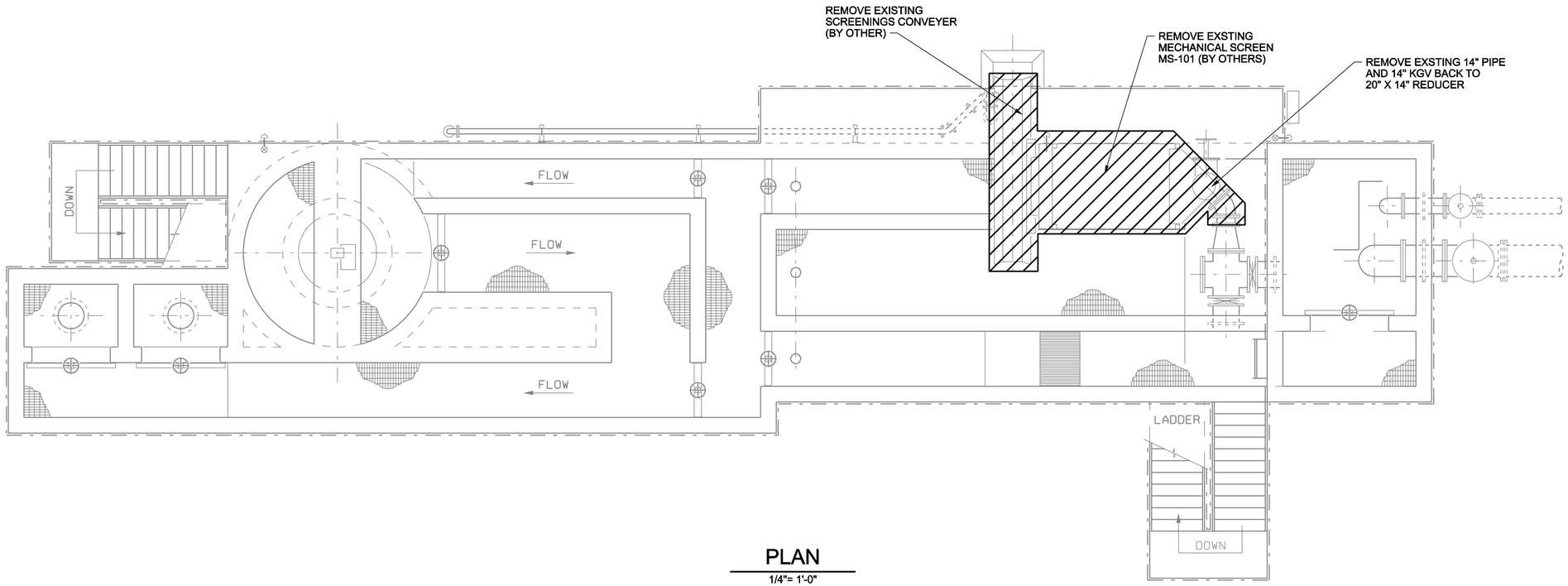
FILENAME: $FILEL$ PLOT DATE: 10-JAN-2011 PLOT TIME: 15:24:36 SCALE: 15:24:36



PLAN

1/4"= 1'-0"

4 0 4 8 FEET

SCALE 1/4"=1'-0"

NORTH

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY

DESIGN X
DRAWN X
CHECKED X
APPROVED JM

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CITY OF TOMBALL
HEADWORKS REPLACEMENT
SOUTH WASTEWATER
TREATMENT PLANT

MECHANICAL

DEMOLITION PLAN

STATE OF TEXAS
ROBBY DAN BRYANT
104022
LICENSED
PROFESSIONAL ENGINEER

DATE: 1-13-11

DATE
JAN 2011
PROJECT NUMBER
10-045
DRAWING NUMBER
M-801
SHEET - OF -

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FILENAME: $FILEL$ PLOT DATE: 10-JAN-2011 PLOT TIME: 11:28:02 SCALE: 11:28:02

SYMBOLS:

CIRCUIT AND RACEWAYS:

RACEWAY OR WIRING SYSTEM ABOVE FLOOR LEVEL, EXPOSED UON.

RACEWAY OR WIRING SYSTEM IN OR UNDER FLOOR, OR CONCEALED IN OR BEHIND STRUCTURE OR EQUIPMENT, OR CONDUIT ROUTED BELOW GRADE.

ELECTRICAL DUCTBANK

PMH — POWER MANHOLE

PPB — POWER PULLBOX

CMH — CONTROLS / INSTRUMENTATION MANHOLE

CPB — CONTROLS / INSTRUMENTATION PULLBOX

PNL-A-1,3,5 — HOME RUN; DESIGNATIONS INDICATE A ONE-LINE DIAGRAM OR PANELBOARD SCHEDULE REFERENCE

EXAMPLE: HOME TO PANELBOARD PNL-A, CIRCUITS 1, 3, AND 5

RACEWAY OR WIRING SYSTEM TURNED TOWARD THE VIEWER (UP ON PLAN DRAWINGS)

RACEWAY OR WIRING SYSTEM TURNED AWAY FROM THE VIEWER (DOWN ON PLAN DRAWINGS)

CONDUIT STUB AND CAP

JB — JUNCTION BOX WITH IDENTIFIER.

GROUNDING:

GROUND ROD, 3/4" x 10'-0", COPPERCLAD (UNLESS OTHERWISE NOTED)

GROUND ROD AND WELL

LIGHTNING ROD

GROUND CONNECTION

GROUNDING CONDUCTOR

METERING (ANSI/IEEE FUNCTIONS AS SPECIFIED):

POWER MONITOR (PM) POWER QUALITY MONITOR (HARMONIC ANALYSIS) (PQM) MOTOR MONITOR AND PROTECTION RELAY (MPR) FEEDER PROTECTION RELAY (FPR)

DISTRIBUTION EQUIPMENT:

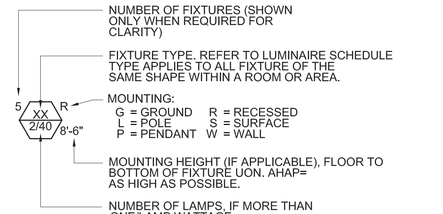
GENERAL:
APPROXIMATE SHAPE AND SCALE REPRESENTED WHERE POSSIBLE HOWEVER EXACT SIZE AND NUMBER OF SECTIONS IS ESTIMATED

MCC 1100 / OR MCC-M — FLOOR-STANDING DISTRIBUTION ASSEMBLY, SUCH AS A SWITCHBOARD, TRANSFORMER, OR MOTOR CONTROL CENTER
EQUIPMENT NUMBER (EXAMPLE)

PBD 1200 — WALL-MOUNTED DISTRIBUTION ASSEMBLY, SUCH AS PANELBOARD, MOTOR CONTROL CENTER, OR TERMINAL CABINET
EQUIPMENT NUMBER (EXAMPLE)

LUMINARIES:

NOTE: LUMINAIRE SHAPES AND SCALE ARE REPRESENTED WHERE POSSIBLE. THE EXAMPLES SHOWN BELOW ARE TYPICAL APPLICATIONS.



NUMBER OF FIXTURES (SHOWN ONLY WHEN REQUIRED FOR CLARITY)

FIXTURE TYPE. REFER TO LUMINAIRE SCHEDULE TYPE APPLIES TO ALL FIXTURE OF THE SAME SHAPE WITHIN A ROOM OR AREA.

MOUNTING:
G = GROUND R = RECESSED
L = POLE S = SURFACE
P = PENDANT W = WALL

MOUNTING HEIGHT (IF APPLICABLE), FLOOR TO BOTTOM OF FIXTURE UON. AHAP= AS HIGH AS POSSIBLE.

NUMBER OF LAMPS, IF MORE THAN ONE/LAMP WATTAGE

FLUORESCENT FIXTURES:

SUSPENDED PENDANT MOUNTED FIXTURE

SURFACE MOUNTED FIXTURE

INCANDESCENT/HID FIXTURES:

RECESSED, SURFACE OR PENDANT

WALL MOUNTED

DIRECTIONAL LIGHT

POLE-MOUNTED AREA LIGHT. ONE POLE AND TWO FIXTURES SHOWN.

EMERGENCY LIGHTING UNIT, SELF-CONTAINED

EXIT LIGHTS. DARK QUADRANTS INDICATE FACES ILLUMINATED:

SURFACE ON CEILING

WALL MOUNTED.

WITH DIRECTIONAL ARROWS

LIGHTING CONTROL AND CIRCUITING:

LP1-3a — LIGHTING CIRCUIT IDENTIFIER: INDICATES CIRCUIT NUMBER AND ASSOCIATED SWITCH. FOR EXAMPLE, LP1-3a INDICATES A FIXTURE POWERED FROM PANEL LP1, CIRCUIT 3 AND SWITCHED BY SWITCH a.

NL — EMERGENCY LIGHTING FIXTURES, FIXTURES WITH EMERGENCY BALLASTS, AND FIXTURES IDENTIFIED WITH AN 'NL' SHALL BE PROVIDED WITH AN UNSWITCHED POWER SOURCE.

CONTRACTOR SHALL PROVIDE ALL CONDUIT AND CONDUCTORS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.

PCU — PHOTOELECTRIC CONTROL UNIT

CIRCUIT IDENTIFICATION:

EXAMPLE 1: P101: 3-2/0, #6G, 2"C — FOR CIRCUIT P101: THREE 2/0 CONDUCTORS, ONE NO. 6 AWG GROUND WIRE IN A 2" CONDUIT

EXAMPLE 2: SES-2: (2 SETS) 3-1/0, #6G, 1 1/2" C — FOR SES-2: TWO PARALLEL RUNGS OF THREE 1/0 CONDUCTORS, ONE NO. 6 AWG GROUND IN 1 1/2" CONDUIT

EXAMPLE 3: C111: 2-1 PR #16S, 1"C — FOR CONTROL CIRCUIT: TWO INSTRUMENT CABLES OF #16 AWG TWISTED SHIELDED PAIR IN 1" C.

WIRING DEVICES:

SWITCHES:

NOTE: UNLESS OTHERWISE NOTED WIRING DEVICES SHALL BE WALL MOUNTED.

$ — SINGLE POLE SWITCH.

$$ — GANGED SWITCHES–IN COMMON BOX, WITH COMMON WALL PLATE

$^{a}_{3} — SWITCH SUPERSCRIPT MODIFIER. LOWER CASE LETTER. INDICATES LUMINAIRE CONTROLLED--a,b,c,etc. MAY BE COMBINED WITH CIRCUIT NUMBER. EXAMPLE: LP1-3a, etc.

SWITCH SUBSCRIPT MODIFIER. UPPER CASE LETTER OR #:
2 = DOUBLE POLE
3 = THREE WAY
4 = FOUR WAY
K = KEY OPERATED
M = HORSEPOWER RATED MANUAL STARTER
MC = MOMENTARY CONTACT, THREE POSITION
MS = MANUAL (MOTOR) STARTER OR SWITCH
R = RHEOSTAT (DIMMER, SPEED CONTROL)
F = FLUSH MOUNTED (DEMOLITION DRAWINGS ONLY)
WP = WEATHERPROOF

RECEPTACLES: 20 AMP RECEPTACLE; SINGLE STROKE - SINGLE DOUBLE STROKE - DUPLEX.

LP1-3 GF

RECEPTACLE MODIFIERS:
LP1-3 = PANEL & BRANCH CIRCUIT NUMBER
C = CLOCK HANGER
GF = GROUND FAULT CIRCUIT INTERRUPTER
F = FLUSH MOUNTED (DEMOLITION DRAWINGS ONLY)
WP = WEATHERPROOF WHILE IN USE

480V RECEPTACLE

MOTOR AND EQUIPMENT:

MOTOR

MOTOR STARTER, INDIVIDUAL--NOT LOCATED IN AN MCC OR SIMILAR GROUP ASSEMBLY

COMBINATION MOTOR STARTER--NOT LOCATED IN AN MCC OR SIMILAR GROUP ASSEMBLY

100A — DISCONNECT, NON-FUSED. 3 POLE UON. 100A, 3P RATING INDICATED

F — FUSED DISCONNECT: CLASS R FUSES UON.

FIELD INSTRUMENT

FIELD INSTRUMENT MOUNTED ON CONTROL STATION MOUNTING STAND. TYPICAL FOR ALL EQUIPMENT.

CONTROL STATION. CONFIGURATION ACCORDING TO CONTROL DIAGRAMS. REFER TO P&ID FOR HAND STATION EQUIVALENT DEVICES.

HS-100 — EQUIPMENT DESIGNATOR

ABBREVIATIONS:

NOTES:

1. IN GENERAL, ABBREVIATIONS USED IN ELECTRICAL DRAWINGS ARE IN ACCORDANCE WITH ANSI Y1.1-1972. ABBREVIATIONS ON THIS SHEET ARE IN ADDITION, OR ARE AMENDMENTS TO ANSI Y1.1-1972 AND ABBREVIATIONS DEFINED ON OTHER DRAWINGS. IN CASE OF CONFLICT THESE ABBREVIATIONS SHALL TAKE PRECEDENCE.
2. THE FOLLOWING ABBREVIATIONS ARE NOT TO BE CONFUSED WITH EQUIPMENT NUMBERING PREFIXES LISTED ON GENERAL DRAWINGS OR OTHER CONTRACT DOCUMENTS.

A	AMP(S), AMPERE(S)
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AHAP	AS HIGH AS POSSIBLE
AIC	AMPS INTERRUPTING CAPACITY, SYMM.
AL	ALUMINUM
ARCH	ARCHITECT(URAL)
ASYM	ASYMMETRICAL
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BCU	BARE COPPER
BLDG	BUILDING
BOT	BOTTOM
C	CONDUCTOR, CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
CM	CENTIMETERS
CMH	CONTROL MANHOLE
CNTL	CONTROL
C.O.	CONDUIT ONLY, SPARE
CONC	CONCRETE
CPB	CONTROL/INSTRUMENTATION PULLBOX
CPT	CONTROL POWER TRANSFORMER
CU	CURRENT TRANSFORMER COPPER
DB	DUCT BANK, DIRECT BURIAL
DC	DIRECT CURRENT, DATA CABLE
DCU	DISTRIBUTED CONTROL UNIT
DET	DETAIL
DIAG	DIAGRAM
DISC	DISCONNECT
DWG	DRAWING
EA	EACH
EC	EMPTY CONDUIT
ECP	EQUIPMENT CONTROL PANEL
EDB	ELECTRICAL DUCTBANK
EG	ENGINE GENERATOR SET
EL	ELEVATION
ELEC	ELECTRIC(AL)
EMER	EMERGENCY
ENCL	ENCLOSURE/ENCLOSED
EOL	ELECTRONIC OVERLOAD
EQUIP	EQUIPMENT
EX	EXISTING
FDR	FEEDER
FL	FLUORESCENT
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE CONDUIT
F.O.	FAIL OPEN
FO	FIBER OPTIC
FUT	FUTURE
GDR	GROUNDING RESISTOR
GEC	GROUND ELECTRODE CONDUCTOR
GF	GROUND FAULT
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND, G	GROUND
GRS	GALVANIZED RIGID STEEL
H	HIGH
HGT	HEIGHT
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HV	HIGH VOLTAGE
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING
HZ	HERTZ (CYCLES PER SECOND)
ICOM	INTERCOM
ID	INSIDE DIAMETER
IMC	INDIVIDUAL MOTOR CONTROLLER
IMC	INTERMEDIATE METAL CONDUIT
INS	INCANDESCENT
INTLK	INTERLOCK
INST	INSTANTANEOUS
I/O	INPUT/OUTPUT
JB	JUNCTION BOX
KCMIL	1000 CIRCULAR MIL
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KVAR	KILOVOLT-AMPERE REACTIVE
KW	KILOWATT
KWH	KILOWATT-HOUR
L	LONG
LCP	LOCAL CONTROL PANEL
LHH	LOW VOLTAGE HANDHOLE
LMH	LOW VOLTAGE MANHOLE
LP	LEGEND PLATE
LT	LONG TIME
LTG	LIGHTING
LV	LOW VOLTAGE
M	METER
MA	MILLIAMPERE
MBS	MANUAL BYPASS SWITCH
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MPC	MINI POWER CENTER
MECH	MECHANICAL
MFR	MANUFACTURE(R)
MH	MANHOLE, METAL HALIDE
MIC	MICROPHONE
MIS	MANAGEMENT INFORMATION STATION
MISC	MISCELLANEOUS
MM	MILLIMETER
MMR	MOTOR MANAGEMENT RELAY
MOV	MOTOR OPERATED VALVES
MTS	MANUAL TRANSFER SWITCH
MV	MILLIVOLT, MEDIUM VOLTAGE
MVMC	MEDIUM VOLTAGE MOTOR CONTROL
N/A	NOT APPLICABLE
N.C.	NORMALLY CLOSED
NEUT,N	NEUTRAL
NF	NON-FUSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NO.	NUMBER
NOM	NOMINAL
NP	NAMEPLATE
NTS	NOT TO SCALE
OC	ON CENTER
OCC	OPERATION CONTROL CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OIS	OPERATOR INTERFACE STATION
OT	OIL TIGHT
OWS	OPERATOR WORKSTATION
P	POLE, PHASE
PB	PUSH-BUTTON, PULLBOX
PCP	PROCESS CONTROL PANEL
PF	POWER FACTOR
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PMH	POWER MANHOLE
PMM	POWER METERING MODULE
PNL	PANEL
PP	POWER PANEL PAIR
PPB	POWER PULLBOX
PQM	POWER QUALITY METER
PRI	PRIMARY
PSL	PRESSURE SWITCH-LOW
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PWR	POWER
QSB	QUARTZ STANDBY
RCPT	RECEPTACLE
REF	REFERENCE
REQD	REQUIRED
RE STL	REINFORCING STEEL
RMS	ROOT MEAN SQUARE
RTD	RESISTANCE TEMPERATURE DETECTOR
RTU	REMOTE TELEMETRY UNIT
SA	SURGE ARRESTOR
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DETECTOR
SEC	SECONDARY
SEL	SELECTOR
SHH	SIGNAL HANDHOLE
SPEC	SPECIFICATION
SPKR	SPEAKER
SSS	SOLID STATE STARTER
ST	SHORT TIME
SUB	SUBSTATION
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYMM	SYMMETRICAL
SYS	SYSTEM
TB	TERMINAL BOX
TEL	TELEPHONE
TEMP	TEMPERATURE
TRI	TRIAD
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
U/G	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTABLE POWER SUPPLY
V	VOLT
VA	VOLT-AMPERE
VAR	VOLT-AMPERE REACTIVE
VC	VACUUM CONTACTOR
VFD	VARIABLE FREQUENCY DRIVE
XFMR	TRANSFORMER
XMTR	TRANSMITTER
W	WATT, WIRE, WIDE
W/	WITH
W/O	WITHOUT
WW	WIREWAY
WG	WITH GROUND
WP	WEATHERPROOF WHILE IN USE
XP	EXPLOSION PROOF
Z	IMPEDANCE

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STATE OF TEXAS — RICHARD CANFIELD — 94342 — REGISTERED PROFESSIONAL ENGINEER

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY.

DESIGN BM
DRAWN SAJ
CHECKED RBC
APPROVED RBC

WATERWORKS ENGINEERS
8807 W Sam Houston Pky N, Suite 112 • Houston, TX • 281 977-5235

CITY OF TOMBALL
HEADWORKS REPLACEMENT

ELECTRICAL LEGENDS AND SYMBOLS - SHEET 1

DATE X
PROJECT NUMBER 10-08-081
DRAWING NUMBER E-001
SHEET - OF -

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FILENAME: $FILEL$ PLOT DATE: 12-NOV-2010 PLOT TIME: 15:27:21 SCALE: 15:27:21

CONTROL DIAGRAMS:

LINEWORK:

- CONDUCTORS CONNECTED
- CONDUCTORS NOT CONNECTED

MISCELLANEOUS:

- MCP — MOTOR CIRCUIT PROTECTOR (MCP)
- 15 AMP — CIRCUIT BREAKER, THERMAL-MAGNETIC UNLESS OTHERWISE NOTED
- FU 2B, 15 AMP — FUSE WITH SIZE AND OPTIONAL IDENTIFICATION.
- FU 3/15 AMP — FUSE WITH BLOWN FUSE INDICATOR.
- SIZE — DISCONNECT SWITCH.
- MTR — MOTOR (PHASES AS REQUIRED)
- SOLENOID VALVE
- KVAR — POWER FACTOR CORRECTION CAPACITOR
- MOTOR STARTER TERMINATION POINT
- XX — PLC I/O POINTS
  - DO = DIGITAL OUT SIGNAL
  - DI = DIGITAL IN SIGNAL
  - AO = ANALOG OUT SIGNAL
  - AI = ANALOG IN SIGNAL

INDICATORS:

SHOWN WITH OPTIONAL LEGEND
X = LENS COLOR
- A = AMBER
- B = BLUE
- G = GREEN
- R = RED

- STATUS — DIRECT CONNECTION
- X1 STATUS — PUSH TO TEST TEST BUS TERMINAL SHOWN WITH TERMINALS (OPTIONAL)
- TEST STATUS — REMOTE TEST TEST BUS TERMINAL SHOWN
- STATUS DESCRIPTION — BACK-LIT PUSH-BUTTON SHOWN WITH TERMINALS (OPTIONAL) OPTIONAL IDENTIFIER SHOWN
  EXAMPLE :PUSH-BUTTON HS 1234
  R = RED
  W = WHITE

MAIN CONTACTS:

- M, SIZE 3 — AIR-BREAK CONTACTOR, NEMA SIZE OPTIONAL.

INPUTS AND OUTPUTS.

- DI DIGITAL INPUT
- AI ANALOG INPUT
- DO DIGITAL OUTPUT
- AO ANALOG OUTPUT

COILS:

SHUNT

- S, MOTOR START — a) CONTACTOR COILS WITH OPTIONAL DESCRIPTION OR REF.
  EXAMPLE: CONTACTOR COIL FOR LTG CKT #1
  - C = CONTACTOR, LIGHTING OR GENERAL USE
  - F = FAST OR FORWARD
  - IC = ISOLATION CONTACTOR
  - M = MAIN OR LINE
  - MO = MOTOR OPERATOR
  - R = RUN OR REVERSE
  - S = SLOW OR START
  - T = TRIP COIL
  - 1M = FIRST MAIN OR WYE
  - 2M = SECOND MAIN OR DELTA
- CR1 — b) RELAY COILS WITH NUMERIC SUFFIX AND OPTIONAL DESCRIPTION OR REF. EXAMPLE: CONTROL RELAY 10 USED AS AUTO ENABLE.
  - CR = CONTROL RELAY
  - LR = LATCHING RELAY
  - MR = MACHINE TOOL RELAY
  - TD = TIME DELAY RELAY
- TD1, ON DELAY, X TO XX SEC, U, L, 8, LR — c) TIME DELAY COIL WITH NUMERIC SUFFIX, DELAY ACTION, AND OPTIONAL TIMING RANGE AND SETTING.
  EXAMPLE: TIME DELAY RELAY 9TR.
- d) MECHANICALLY LATCHED RELAY WITH UNLATCH COIL

THERMAL

- OL — THERMAL OVERLOAD RELAY

METER

- M — METER WITH ALPHA IDENTIFIERS:
  - H = ELAPSED TIME
  - A = AMMETER
  - V = VOLTMETER

SWITCH OR INTERLOCK CONTACTS:
SHOWN WITH TERMINALS (OPTIONAL)

NORMALLY OPEN (NO)	NORMALLY CLOSED (NC)	
CR1	CR2	CONTROL RELAY CONTACTS WITH NUMERIC PREFIX AND OPTIONAL REF. OR DESCRIPTION.
TD1, TC	TD2, TO	ON DELAY (DELAY ON COIL ENERGIZATION) RELAY CONTACTS WITH NUMERIC PREFIX AND OPTIONAL REF. OR DESCRIPTION. TC = NORMALLY OPEN, TIME CLOSE. TO = NORMALLY CLOSED, TIME OPEN.
TD3, TO	TD4, TC	OFF DELAY (DELAY ON COIL DE-ENERGIZATION) RELAY CONTACTS. TO = NORMALLY OPEN, TIME OPEN. TC = NORMALLY CLOSED, TIME CLOSE.

MAIN CONTACTS:

- M, SIZE 3 — VACUUM CONTACTOR, NEMA SIZE OPTIONAL.
- M — REDUCED VOLTAGE SOLID STATE STARTER COIL

SWITCHES:
(SHOWN WITH OPTIONAL LOCATION REFERENCE)

NORMALLY OPEN (NO)	NORMALLY CLOSED (NC)	
ZS-100	ZS-101	LIMIT: FREE
ZS-102	ZS-103	LIMIT: HELD
FS-100	FS-101	FLOW
TS-100	TS-101	TEMPERATURE
PS-100	PS-101	PRESSURE
LS-100	LS-101	LEVEL
OS-100	OS-101	FORCE OR TORQUE
HS-100, START	HS-101, STOP	MANUAL: MOMENTARY PUSH-BUTTON
ES-100		MANUAL: MUSHROOM HEAD MAINTAINED PUSH-BUTTON

- 1 2, OX, AT PNLxxx — MANUAL: SELECTOR SWITCH 2 POSITION MAINTAINED
  SWITCH POSITION
  X = CLOSED CONTACT
  0 = OPEN CONTACT
- 1 2, XO, OX, AT PNLxxx — MANUAL: SELECTOR SWITCH 2 POSITION SPRING RETURN TO RIGHT SWITCH POSITION
  X = CLOSED CONTACT
  0 = OPEN CONTACT
- 1 2 3, XOO, OOX, AT PNLxxx — MANUAL: SELECTOR SWITCH 3 POSITION SWITCH POSITION
  X = CLOSED CONTACT
  0 = OPEN CONTACT

ONE LINE DIAGRAMS:

- CIRCUIT ROUTED IN UNDERGROUND DUCTBANK
- XX — INCOMING POWER SUPPLY
- CABLE TERMINATION. STRESS CONES WITH SHIELDED CABLES.
- LIGHTNING ARRESTOR
- SURGE ARRESTOR
- BUS DUCT OR BUSWAY
- STAB OR PULL-APART CONNECTION.
- 52A, 200A — AIR CIRCUIT BREAKER: TRIP AND OPTIONAL I.D. SHOWN.
- 20A, 3P, LSIG — AIR CIRCUIT BREAKER; TRIP SETTING AND SOLID STATE TRIP FEATURES SHOWN:
  - L = LONG DELAY
  - S = SHORT DELAY
  - I = INSTANTANEOUS
  - G = GROUND FAULT
- 52-G1, E, 1000A TRIP, 1200A FRAME — POWER CIRCUIT BREAKER (AIR, OIL, OR GAS) FRAME AND TRIP SETTING AND OPTIONAL I.D. SHOWN
- 100A — DISCONNECT OR ISOLATING SWITCH: CONTINUOUS RATING SHOWN. 3 POLE UON
- F — FUSED SWITCH: FUSE AND SWITCH CONTINUOUS RATINGS SHOWN
- XFMR, 1500 KVA, 13.2 KV - 480V, 3Ø, 4W — POWER TRANSFORMER. DESIGNATION, SIZE, PRIMARY AND SECONDARY VOLTAGES, AND WINDING CONFIGURATION SHOWN.
- WINDING CONFIGURATION: DELTA
- WYE (GROUNDED)
- 3, 4160V - 120V — POTENTIAL TRANSFORMER PRIMARY AND SECONDARY VOLTAGES AND WINDINGS SHOWN. QUANTITIES SHOWN.
- 250/5, 3 — CURRENT TRANSFORMER: RATIO, QUANTITIES SHOWN.
- M — METER
- 64 N, 3 — ANSI C37.2 DEVICE. QUANTITIES SHOWN.
- GENERATOR WITH WINDING CONFIGURATION.

- GDR, 50 AMP, 10 SEC — NEUTRAL GROUNDING RESISTOR: AMPS/TIME RATING SHOWN
- K — KIRK KEY INTERLOCK
- 200HP — MOTOR, HORSEPOWER SHOWN
- MTS10, 60A, 3P — POWER TRANSFER SWITCH. DESIGNATION, AMP RATING AND CONFIGURATION SHOWN.
  - MTS = MANUAL TRANSFER SWITCH
  - ATS = AUTOMATIC TRANSFER SWITCH
- 1 — AIR BREAK CONTACTOR, FVNR U.O.N. NEMA SIZE 1 INDICATED
  - FVR = FULL VOLTAGE, REVERSING STARTER
  - RVS = REDUCED VOLTAGE STARTER
  - 2S2W = TWO SPEED, TWO WINDING STARTER
- GROUNDING ELECTRODE
- 55 KVAR — POWER FACTOR CORRECTION CAPACITOR. KVAR RATING INDICATED
- EOL — ELECTRONIC OVERLOAD
- MMR — MOTOR MANAGEMENT RELAY
- SSS — SOLID STATE STARTER
- VFD — VARIABLE FREQUENCY DRIVE

GENERAL NOTES:

1. SYMBOLS AND ABBREVIATION DRAWINGS ARE GENERAL IN NATURE; NOT ALL SYMBOLS OR ABBREVIATIONS SHOWN ON DRAWINGS E001 AND E002 ARE USED IN SUBSEQUENT DRAWINGS.

APEX Engineering & Automation, LLC
Quality Engineering...where the client comes first
8000 IH 10 WEST SUITE 600 * SAN ANTONIO * TX * 78230 * (210) 340 - 4779

RICHARD CANFIELD 94342 REGISTERED PROFESSIONAL ENGINEER STATE OF TEXAS

VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY.

DESIGN BM
DRAWN SAJ
CHECKED RBC
APPROVED RBC

WATER WORKS ENGINEERS
8807 W Sam Houston Pky N, Suite 112 • Houston, TX • 281 877-6235

CITY OF TOMBALL
HEADWORKS REPLACEMENT

ELECTRICAL LEGENDS AND SYMBOLS - SHEET 2

DATE X
PROJECT NUMBER 10-08-081
DRAWING NUMBER E-002
SHEET - OF -

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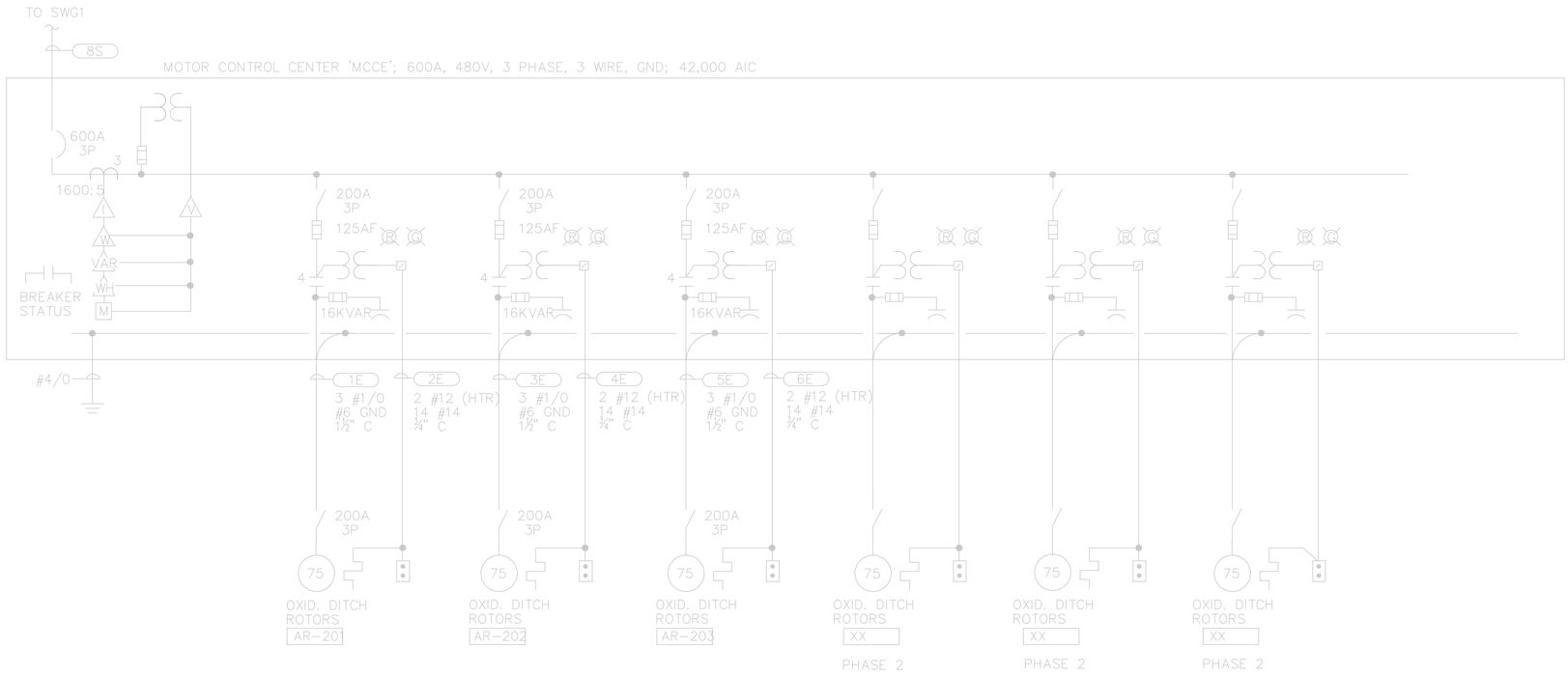
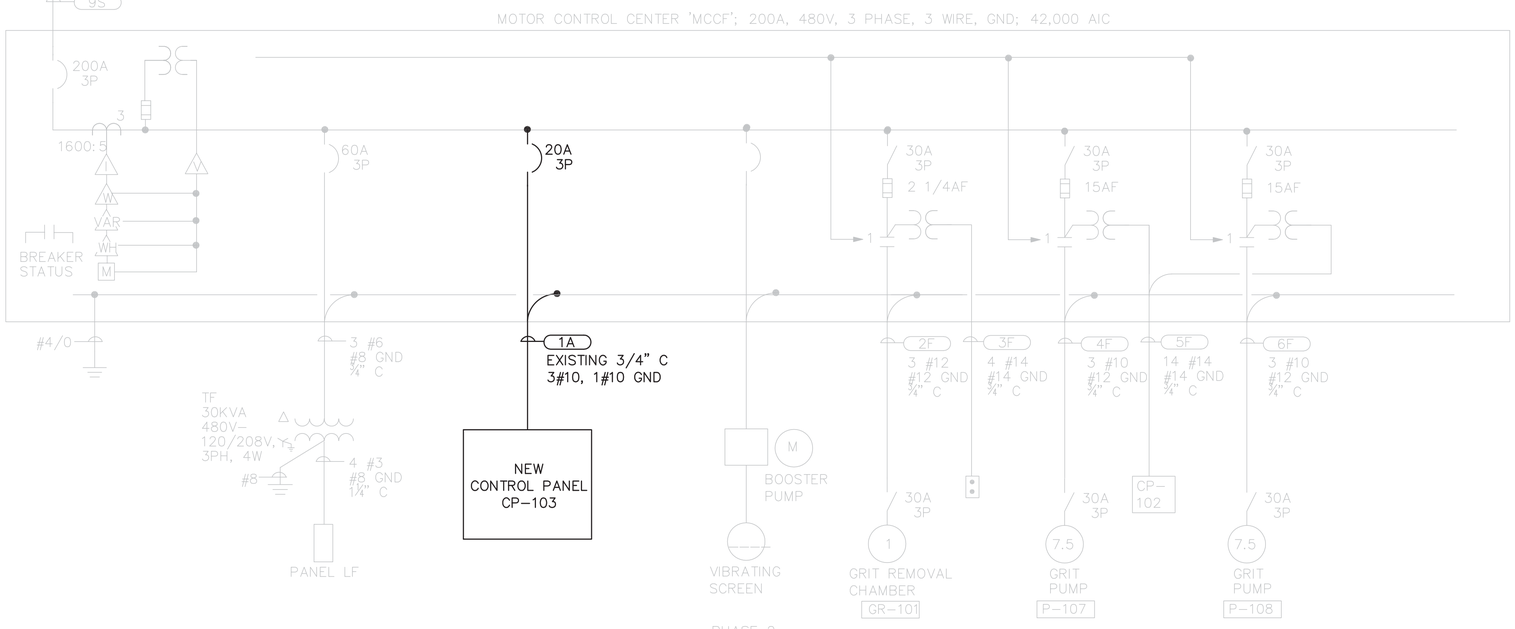
FILENAME: $FILEL$ PLOT DATE: 12-NOV-2010 PLOT TIME: 15:27:21 SCALE: 15:27:21





GENERAL NOTES:

1. ALL DISCONNECT SWITCHES AND PUSHBUTTONS TO BE NEMA 4X.
2. ALL CONTROL PANELS PROVIDED BY EQUIPMENT MANUFACTURER. ALL FIELD DEVICES WIRED BY CONTROL PANEL MANUFACTURER.

NOTES:⬡

⬡1 DEMO EXISTING CONTROL PANEL AND REPLACE WITH NEW PANEL.

VERIFY SCALE
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APPROVED RBC

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CITY OF TOMBALL
HEADWORKS REPLACEMENT

MCCE AND MCCF
ONE LINE
DIAGRAM

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STATE OF TEXAS
RICHARD CANFIELD
94342
REGISTERED
PROFESSIONAL ENGINEER

DATE
X
PROJECT NUMBER
10-08-081
DRAWING NUMBER
E-003
SHEET - OF -

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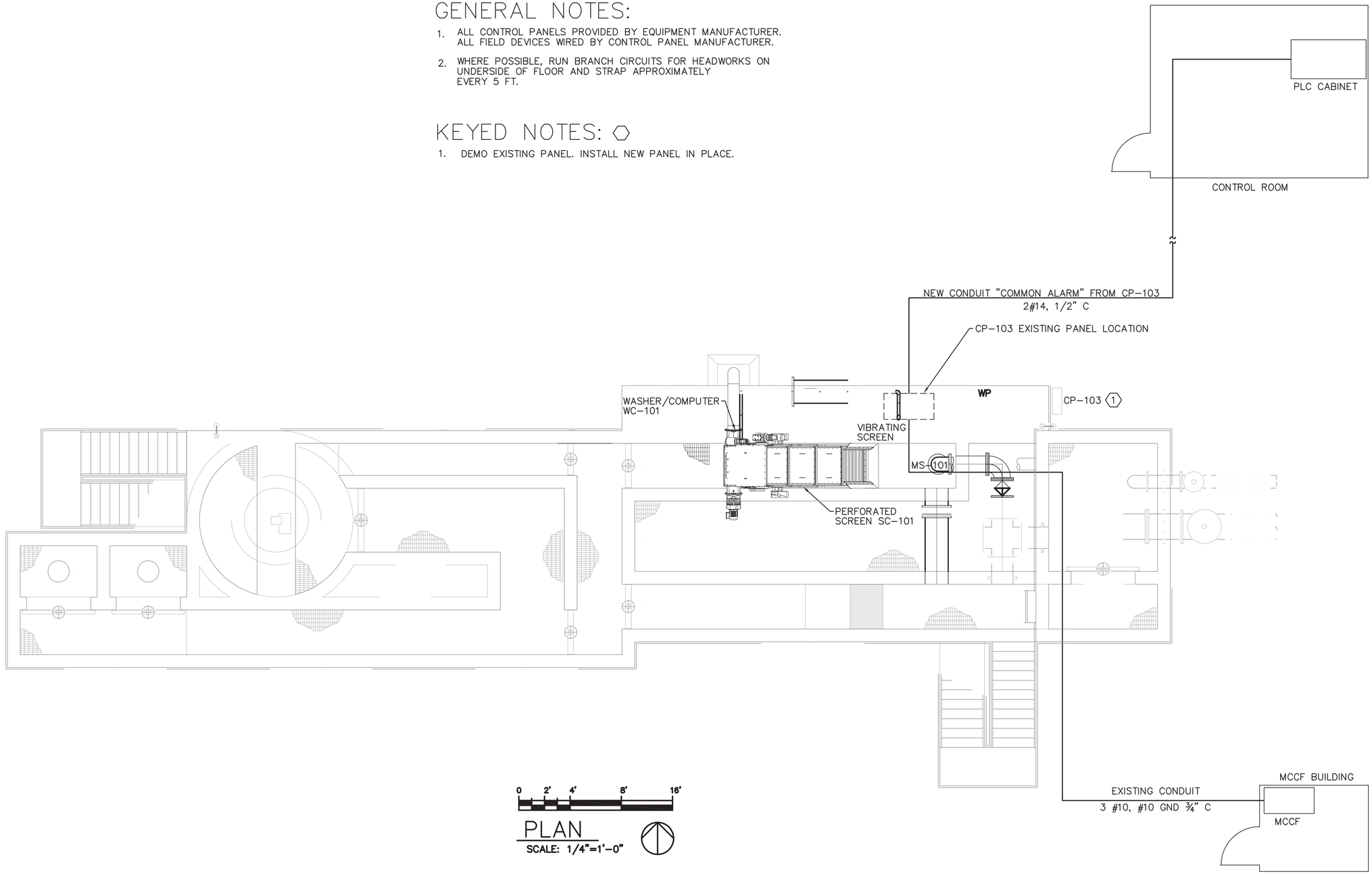
FILENAME: $FILEL$ PLOT DATE: 12-NOV-2010 PLOT TIME: 15:27:21 SCALE: 15:27:21

GENERAL NOTES:

1. ALL CONTROL PANELS PROVIDED BY EQUIPMENT MANUFACTURER. ALL FIELD DEVICES WIRED BY CONTROL PANEL MANUFACTURER.
2. WHERE POSSIBLE, RUN BRANCH CIRCUITS FOR HEADWORKS ON UNDERSIDE OF FLOOR AND STRAP APPROXIMATELY EVERY 5 FT.

KEYED NOTES: ⬡

1. DEMO EXISTING PANEL. INSTALL NEW PANEL IN PLACE.



PLAN
SCALE: 1/4"=1'-0"

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STATE OF TEXAS
RICHARD CANFIELD
94342
REGISTERED
PROFESSIONAL ENGINEER

VERIFY SCALE
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0 1"
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DESIGN BM
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CHECKED RBC
APPROVED RBC

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CITY OF TOMBALL
HEADWORKS REPLACEMENT

HEADWORKS ELECTRICAL PLAN
ELEV 177.50

DATE X
PROJECT NUMBER 10-08-081
DRAWING NUMBER E-004
SHEET - OF -

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FILENAME: $FILEL$ PLOT DATE: 12-NOV-2010 PLOT TIME: 15:27:21 SCALE: 15:27:21

SURFACE AERATOR NO.1
MCCE
MONITOR ON

SURFACE AERATOR NO.2
MCCE
MONITOR ON

SURFACE AERATOR NO.3
MCCE
MONITOR ON

GRIT REMOVAL CHAMBER
MCCF
MONITOR ON

NEW CONROL PANEL - 103
COMMON ALARM

GRIT PUMPS CONTROL PANEL
CP-102
P-107 ALARM
P-108 ALARM

SCUM PUMPS CONTROL PANEL
CP-305
FUTURE MONITORING
PUMP 1 ON
PUMP 2 ON
PUMP 1 ALARM
PUMP 2 ALARM
HIGH LEVEL
LS 3051
LS 3032
LS 3054
LS 3053

PLANT PROGRAMMABLE LOGIC CONTROLLER (PPLC)

(LOCATED IN MCCA)

RAS/WAS PUMPS NO.1 & NO.2 CONTROL PANEL
CP-303
P-301 ON
P-301 ALARM
P-302 ON
P-302 ALARM
120VAC
4-20maDC
WAS FLOW
FIT 3032
RAS FLOW
FIT 3031

RAS/WAS PUMPS NO.3 CONTROL PANEL
VF-304
P-303 ON
P-303 ALARM

CLARIFIER NO.1 CONTROL PANEL
CP-301
MOTOR ON
ALARM

CLARIFIER NO.2 CONTROL PANEL
CP-302
PUMP 1 ON
PUMP 2 ON

FIT 3010
CLARIFIER NO.1 FLOW
FIT 3020
CLARIFIER NO.2 FLOW

PLANT LIFT STATION CONTROL PANEL
CP-101
FUTURE MONITORING
PUMP 1 ON
PUMP 2 ON
PUMP 3 ON
PUMP 4 ON
PUMP 1 ALARM
PUMP 2 ALARM
PUMP 3 ALARM
PUMP 4 ALARM
HIGH LEVEL
LOW LEVEL
LS 1012
LS 1011
LS 1013
LS 1014
LS 1016
LS 1015
LT 1010
120VAC

DI

STATE OF TEXAS
RICHARD CANFIELD
94342
REGISTERED PROFESSIONAL ENGINEER

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CITY OF TOMBALL
HEADWORKS REPLACEMENT

PLANT MONITORING SYSTEM PLC INPUTS

DATE X
PROJECT NUMBER 10-08-081
DRAWING NUMBER E-005
SHEET - OF -

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FILENAME: $FILEL$ PLOT DATE: 12-NOV-2010 PLOT TIME: 15:27:21 SCALE: 15:27:21

Regular City Council
Agenda Item
Data Sheet

Meeting Date: March 21, 2011

Topic:

Approve Professional Services Agreements with CLR, Inc. in the amount of $65,160.00 and Cobb Fendley & Associates, Inc. in the amount of $7,000.00 for Professional Services related to Extension of Utilities located on Brown Road, extending westerly of State Highway 249 and easterly of Spring Creek Estates, and Authorize City Manager to Execute Agreements

Background:

On February 22, 2011 the Tomball Economic Development Corporation (TEDC) approved funding a Utility Extension along Brown Road, westerly of SH249 to easterly of Spring Creek Estates. The utility extension includes right-of-way and utility easement acquisition, approximately 1,300 lineal feet for 4" gas, 12" water, and 10" sanitary lines construction. Attached is an exhibit, Brown Road Utility Extension, of the proposed area. The extension of the utilities will provide services to future commercial developments within the area.

In addition to the utilities funded by the TEDC the City will extend the 4" gas service to loop the system with the deadend line in Spring Creek Estates. This will prevent any loss of service to the subdivision should there be a break in the gas line along FM 2920.

On March 7, 2011 City Council approved Engineering and Planning to negotiate and prepare a Professional Services Contract for the Brown Road Utility Extension.

Origination:

Engineering and Planning Department

Recommendation:

The Engineering and Planning Department recommend approval.

Funding: No

Funds will be transferred from Account: To be funded by TEDC Grant to Account:

Party(ies) responsible for placing this item on agenda:

Engineering and Planning Department

ACTION TAKEN

APPROVAL	READINGS PASSED	OTHER
☐ YES ☐ NO	☐ 1ST ☐ 2ND	

ATTACHMENTS:

CLR Professional Services Agreement
CLR Proposal and Scope of Work
Cobb Fendley Professional Service Agreement
Cobb Fendley Proposal and Scope of Work

PROFESSIONAL SERVICES AGREEMENT
FOR
ENGINEERING SERVICES
RELATED TO
BROWN ROAD UTILITY EXTENSIONS

THE STATE OF TEXAS §
§
COUNTY OF HARRIS §

THIS AGREEMENT made on the _____ day of _____, 2011 entered into, and executed by and between the City of Tomball, Texas (the "City"), a municipal corporation of the State of Texas, and CLR, Inc. ("Engineer").

WITNESSETH:

WHEREAS, the City desires to construct improvements along the extension of Brown Road within the segment of Brown Road extending westerly of State Highway 249, to include approximately 1300 linear feet of public water lines, approximately 1300 linear feet of sanitary sewers, and approximately 1800 linear feet of gas lines (the "Project"); and

WHEREAS, the services of a professional engineering firm are necessary to field survey, plan, design, and prepare construction documents, and

WHEREAS, the Engineer represents that it is fully capable and qualified to provide professional services to the City related to professional civil engineering and professional land surveying;

NOW, THEREFORE, the City and Engineer, in consideration of the mutual covenants and agreements herein contained, do mutually agree as follows:

SECTION I
SCOPE OF AGREEMENT

Engineer agrees to perform certain professional engineering services as defined in Attachment "A" attached hereto and made a part hereof for all purposes, hereinafter sometimes referred to as "Scope of Work," and for having rendered such services, the City agrees to pay Engineer compensation as stated in Section VII.

SECTION II
CHARACTER AND EXTENT OF SERVICES

Engineer shall do all things necessary to render the engineering services and perform the Scope of Work in a professional and workmanlike manner. It is expressly

understood and agreed that Engineer is an Independent Contractor in the performance of the services agreed to herein. It is further understood and agreed that Engineer shall not have the authority to obligate or bind the City, or make representations or commitments on behalf of the City or its officers or employees without the express prior approval of the City. The City shall be under no obligation to pay for services rendered not identified in Attachment "A" without prior written authorization from the City.

SECTION III
OWNERSHIP OF WORK PRODUCT

Engineer agrees that the City shall have the right to use all exhibits, maps, reports, analyses and other documents prepared or compiled by Engineer pursuant to this Agreement. The City shall be the absolute and unqualified owner of all studies, exhibits, maps, reports, analyses, determinations, recommendations, computer files, and other documents prepared or acquired pursuant to this Agreement with the same force and effect as if the City had prepared or acquired the same.

SECTION IV
TIME FOR PERFORMANCE

The time for performance of the Scope of Work is 180 (Calendar) days beginning from the execution date of this Agreement. Upon written request of Engineer, the City may grant time extensions to the extent of any delays caused by the City or other agencies with which the work must be coordinated and over which Engineer has no control.

SECTION V
COMPLIANCE AND STANDARDS

Engineer agrees to perform the work hereunder in accordance with generally accepted standards applicable thereto and shall use that degree of care and skill commensurate with the applicable profession to comply with all applicable state, federal, and local laws, ordinances, rules, and regulations relating to the work to be performed hereunder and Engineer's performance.

SECTION VI
INDEMNIFICATION

To the fullest extent permitted by Texas Local Government Code Section 271.904, Engineer shall and does hereby agree to indemnify, hold harmless and defend the City, its officers, agents, and employees against liability for damage caused by or resulting from an act of negligence, intentional tort, intellectual property infringement, or failure to pay a subcontractor or supplier committed by the Engineer, the Engineer's agent, consultant under contract, or another entity over which the Engineer exercises control.

SECTION VII
ENGINEER'S COMPENSATION

For and in consideration of the services rendered by Engineer pursuant to this Agreement, the City shall pay Engineer only for the actual work performed under the Scope of Work, on the basis set forth in Attachment "A," up to an amount not to exceed $65,160 (includes reimbursables).

SECTION VIII
TERMINATION

The City may terminate this Agreement at any time by giving written notice to Engineer. Upon receipt of such notice, Engineer shall discontinue all services in connection with the performance of this Agreement and shall proceed to promptly cancel all existing orders and contracts insofar as such orders or contracts are chargeable to the Agreement. As soon as practicable after receipt of notice of termination, Engineer shall submit a sworn statement, showing in detail the services performed under this Agreement to the date of termination. The City shall then pay Engineer for such services performed under this Agreement as those services bear to the total services called for under this Agreement, less such payments on account of the charges as have been previously made. Copies of all completed or partially completed designs, maps, studies, documents and other work product prepared under this Agreement shall be delivered to the City when and if this Agreement is terminated.

SECTION IX
ADDRESSES, NOTICES AND COMMUNICATIONS

All notices and communications under this Agreement shall be mailed by certified mail, return receipt requested, to Engineer at the following address:

CLR, Inc.
19530 FM 362
Waller, TX 77484
Attn: Kyle A. Bertrand, PE

All notices and communications under this Agreement shall be mailed by certified mail, return receipt requested, to the City at the following address:

City of Tomball
501 W. Market Street
Tomball, Texas 77375
Attn: City Engineer

SECTION X
LIMIT OF APPROPRIATION

Prior to the execution of this Agreement, Engineer has been advised by the City and Engineer clearly understands and agrees, such understanding and agreement being of the absolute essence to this Agreement, that the City shall have available only those sums as expressly provided for under this Agreement to discharge any and all liabilities which may be incurred by the City and that the total compensation that Engineer may become entitled to hereunder and the total sum that the City shall become liable to pay to Engineer hereunder shall not under any conditions, circumstances, or interpretations hereof exceed the amounts as provided for in this Agreement.

SECTION XI
SUCCESSORS AND ASSIGNS

The City and Engineer bind themselves and their successors and assigns to the other party of this Agreement and to the successors and assigns of such other party, in respect to all covenants of this Agreement. Engineer shall not assign, sublet, or transfer its interest in this Agreement without the written consent of the City. Nothing herein shall be construed as creating any personal liability on the part of any officer or agent of the City or any public body which may be a party hereto.

SECTION XII
MODIFICATIONS

This instrument, including Attachment "A," contains the entire Agreement between the parties relating to the rights herein granted and the obligations herein assumed. To the extent there is a conflict between the provisions of this Agreement and the provisions of Attachment "A," this Agreement shall control. Any oral or written representations or modifications concerning this instrument shall be of no force and effect excepting a subsequent modification in writing signed by both parties hereto.

SECTION XIII
ADDITIONAL SERVICES OF ENGINEER

If authorized in writing by the City, Engineer shall furnish, or obtain from others, Additional Services that may be required because of significant changes in the scope, extent or character of the portions of the Project designed or specified by the Engineer, as defined in Attachment "A." These Additional Services, plus reimbursable expenses, will be paid for by the Owner on the basis set forth in Attachment "A," up to the amount authorized in writing by the City.

SECTION XIV
CONFLICTS OF INTEREST

Pursuant to the requirements of the Chapter 176 of the Texas Local Government Code, Engineer shall fully complete and file with the City Secretary a Conflict of Interest Questionnaire.

SECTION XV
PAYMENT TO ENGINEER FOR SERVICES AND REIMBURSABLE EXPENSES

Invoices for Basic and Additional Services and reimbursable expenses will be prepared in accordance with Engineer's standard invoicing practices and will be submitted to the City by Engineer at least monthly. Invoices are due and payable thirty (30) days after receipt by the City.

SECTION XVI
INSURANCE

Engineer shall procure and maintain insurance in accordance with the terms and conditions set forth in Attachment "B," for protection from workers' compensation claims, claims for damages because of bodily injury, including personal injury, sickness or disease or death, claims or damages because of injury to or destruction of property including loss of use resulting therefrom, and claims of errors and omissions.

SECTION XVII
MISCELLANEOUS PROVISIONS

A. This Agreement is subject to the provisions of the Texas Prompt Payment Act, Chapter 2250 of the Texas Government Code. The approval or payment of any invoice shall not be considered to be evidence of performance by Engineer or of the receipt of or acceptance by the City of the work covered by such invoice.

B. Venue for any legal actions arising out of this Agreement shall lie exclusively in the federal and state courts of Harris County, Texas.

C. This Agreement is for sole benefit of the City and Engineer, and no provision of this Agreement shall be interpreted to grant or convey to any other person any benefits or rights.

D. Contractor further covenants and agrees that it does not and will not knowingly employ an undocumented worker. An "undocumented worker" shall mean an individual who, at the time of employment, is not (a) lawfully admitted for permanent residence to the United States, or (b) authorized by law to be employed in that manner in the United States.

IN WITNESS WHEREOF, the City of Tomball has lawfully caused this Agreement to be executed by the City Manager of said City and attested by the City Secretary and _____, acting by and through its duly authorized officer/representative, does now sign, execute, and deliver this instrument.

EXECUTED on this _____ day of _____, 2011.

ENGINEER:

CLR, Inc.

By: _____
Name: Kyle A. Bertrand, PE
Title: Senior Vice President

CITY OF TOMBALL, TEXAS

_____
George Shackelford, City Manager

ATTEST:

_____
Doris Speer, City Secretary

ATTACHMENT "A"

SCOPE OF SERVICES

AND

BASIS OF COMPENSATION AND REIMBURSABLE EXPENSES

ATTACHMENT "B"

INSURANCE

ATTACHMENT A
SERVICES TO BE PROVIDED BY ENGINEER

The following scope addresses the scope of work for the construction drawings for public utility extensions along Brown Road between SH 249 and 1800 feet west of SH 249. The proposed utility extensions to consist of approximately 1300 linear feet of 12" diameter water line, approximately 1300 linear feet of 10" diameter sanitary sewer, and approximately 1800 linear feet of 4" to 6" diameter gas main (sizing to be provided by the "City") to be situated in a City of Tomball Utility Easement adjacent to the south side of the Brown Road right-of-way.

After prior written authorization by the "City" to proceed with the Design Phase, the Engineer shall:

A. DESIGN PHASE

a. Prepare and deliver to the City a schedule, which details the scope of the Project;

b. Utility Investigation: Obtain utility information along project limits and include in construction drawings. Coordination with utility companies should relocation be required.

c. Utility Extension Plan: Utilizing the topographic survey, prepare construction drawings for the proposed utility extension noted above. Note: layout of gas main will be depicted for purposes of location, only.

d. Coordination & Meetings: Attend project meetings for coordination during plan preparation.

e. Traffic Control for construction along Brown Road for the improvements.

f. Prepare and furnish the City a plan for erosion controls during construction activities. Note: SWPPP project manuals and preparation of notices are not included in this scope of services.

g. Furnish to the City, where applicable, the engineering data necessary for applications for routine permits required by local, state and federal authorities (as distinguished from detailed applications and supporting documents for government grants or planning advances).

h. Prepare and furnish the City detailed construction drawings, project manual and specifications suitable for reproduction.

i. Prepare a detailed opinion of probable construction cost and a bidders' proposal form for construction authorized by the City.

j. Furnish to the City two (2) sets of construction drawings when 75% and 100% complete.

k. Furnish the City a 3-mil mylar positive of the construction drawings suitable for reproduction.

l. Assist with acquisition of all necessary public and/or private agency approvals.

B. BID PHASE

After prior written authorization by the "City" to proceed with the Contract Phase, the Engineer shall:

a. Attend pre-bid conferences and prepare necessary addenda.

b. Assist the City in obtaining bids.

c. Prepare tabulation and analysis of bids. Prepare letter of recommendation on the award of the construction contract.

C. TOPOGRAPHICAL SURVEYING PHASE

After prior written authorization by the "City" to proceed with the Topographical Surveying Phase, the Engineer shall:

a. Prepare an Abstract Map along new utility alignments for the properties and ad joiners for the proposed easement alignment.

b. Obtain permission from property owners to enter their property. Perform topographic survey along proposed route including cross sections at 100-foot intervals. Locate visible improvements and utilities. Horizontal and vertical control will be based upon previous control for Brown Road.

c. Perform as-built survey of newly constructed facilities along Brown Road. Survey to include visible appurtenances and sanitary sewer flowline information.

D. ROW MAPPING PHASE

a. Prepare right-of-way strip map showing parcels to be acquired. Prepare metes & bounds descriptions of rights-of-way needed for the proposed project. An estimated 3 parcels are needed at $2500 per parcel for

mapping. Note: Activities related to acquisition of real property are not a part of the herein-described scope of services.

E. CONSTRUCTION SERVICES PHASE

After prior written authorization by the "City" to proceed with the Construction Services Phase, the Engineer shall:

a. Perform periodic field visits to the site to monitor progress of the work.

b. Confer with the “City” with regard to the status of the project.

c. Respond to Contractor requests for information regarding implementation of the design requirements.

d. Provide an Engineer’s Letter of Substantial Completion at project close-out.

F. GEOTECHNICAL SERVICES PHASE

After prior written authorization by the "City" to proceed with the Geotechnical Services Phase, the Engineer shall:

a. Secure the services of a geotechnical engineering consultant to perform field investigations, soil tests and analysis of test results that may be required for design or construction.

b. Secure the services of a materials testing consultant to secure field densities of trench backfill, compressive strength of cement-stabilized sand materials, etc., during construction of the proposed utilities.

For purposes of clarity, the following is a list of services, which are not a part of the scope of services.

A. Design of gas mains and related facilities.
B. Environmental site assessments.
C. Construction phase services including review of shop drawings, field visits, review monthly pay estimates, etc.
D. Landscape and irrigation plans.
E. Continuous field representation during construction activities.

PROFESSIONAL SERVICES AGREEMENT
(Not Including Architectural or Engineering Services)

THE STATE OF TEXAS §
§
COUNTY OF HARRIS §

THIS AGREEMENT is made, entered into, and executed by and between the CITY OF TOMBALL, TEXAS (the "City"), a municipal corporation of the State of Texas, and COBB FENDLEY & ASSOCIATES, INC. (“Cobb Fendley”).

WITNESSETH:

WHEREAS, Cobb Fendley represents that it is capable of providing and qualified to provide professional services to the City and Cobb Fendley desires to perform the same;

NOW, THEREFORE, the City and Cobb Fendley in consideration of the mutual covenants and agreements herein contained, do mutually agree as follows:

1.
SCOPE OF AGREEMENT

Cobb Fendley agrees to perform certain professional services as outlined and defined in the Proposal attached hereto as Exhibit A, and made a part hereof for all purposes, hereinafter sometimes referred to as “Scope of Work,” and for having rendered such services, the City agrees to pay Cobb Fendley compensation as stated in the sections to follow.

2.
CHARACTER AND EXTENT OF SERVICES

Cobb Fendley shall do all things necessary to render the services and perform the Scope of Work in a professional and workmanlike manner. It is expressly understood and agreed that Cobb Fendley is an Independent Contractor in the performance of the services agreed to herein. It is further understood and agreed that Cobb Fendley shall not have the authority to obligate or bind the City, or make representations or commitments on behalf of the City or its officers or employees without the express prior approval of the City. The City shall be under no obligation to pay for services rendered not identified in Exhibit “A” without prior written authorization from the City.

3.
OWNERSHIP OF WORK PRODUCT

Cobb Fendley agrees that the City shall have the right to use all exhibits, maps, reports, analyses and other documents prepared or compiled by Cobb Fendley pursuant to this Agreement. The City shall be the absolute and unqualified owner of all studies, exhibits, maps, reports, analyses, determinations, recommendations, computer files, and other documents prepared or acquired pursuant to this Agreement with the same force and effect as if the City had prepared or acquired the same.

4.
TIME FOR PERFORMANCE

The time for performance is as estimated in Exhibit A attached hereto. Upon written request of Cobb Fendley, the City may grant time extensions to the extent of any delays caused by the City or other agencies with which the work must be coordinated and over which Cobb Fendley has no control.

5.
COMPLIANCE AND STANDARDS

Cobb Fendley agrees to perform the work hereunder in accordance with generally accepted standards applicable thereto and shall use that degree of care and skill commensurate with the applicable profession to comply with all applicable state, federal, and local laws, ordinances, rules, and regulations relating to the work to be performed hereunder and Cobb Fendley's performance.

6.
INDEMNIFICATION

Cobb Fendley shall and does hereby agree to indemnify, defend, and hold harmless the City, its officers, agents, and employees from any and all damages, loss or liability of any kind whatsoever, by reason of death or injury to property or third persons caused by the negligent act or omission of Cobb Fendley, its officers, agents, employees, invitees or other persons for whom it is legally liable, with regard to the performance of this Agreement, and Cobb Fendley will, at its cost and expense, defend, pay on behalf of, and protect the City and its officers, agents, and employees against any and all such claims and demands. Such indemnity shall apply where the suits, actions, legal proceedings, claims, demands, damages, costs, expenses and attorney fees arise in whole or in part from the negligence of Cobb Fendley.

7.
COMPENSATION

For and in consideration of the services rendered by Cobb Fendley pursuant to this Agreement, the City shall pay Cobb Fendley only for the actual work performed

under the Scope of Work, on the basis set forth in Exhibit "A," up to an amount not to exceed $7,000.00, plus reimbursable expenses.

8.
INSURANCE

Cobb Fendley shall procure and maintain insurance in accordance with the terms and conditions set forth in Exhibit "B," for protection from workers' compensation claims, claims for damages because of bodily injury, including personal injury, sickness, disease, or death, claims or damages because of injury to or destruction of property, including loss of use resulting therefrom, and claims of errors and omissions.

9.
TERMINATION

The City may terminate this Agreement at any time by giving seven (7) days prior written notice to Cobb Fendley. Upon receipt of such notice, Cobb Fendley shall discontinue all services in connection with the performance of this Agreement and shall proceed to promptly cancel all existing orders and contracts insofar as such orders or contracts are chargeable to the Agreement. As soon as practicable after receipt of notice of termination, Cobb Fendley shall submit a statement, showing in detail the services performed under this Agreement to the date of termination. The City shall then pay Cobb Fendley that proportion of the prescribed charges which the services actually performed under this Agreement bear to the total services called for under this Agreement, less such payments on account of the charges as have been previously made. Copies of all completed or partially completed maps, studies, reports, documents and other work product prepared under this Agreement shall be delivered to the City when and if this Agreement is terminated.

10.
ADDRESSES, NOTICES AND COMMUNICATIONS

All notices and communications under this Agreement shall be mailed by certified mail, return receipt requested, to Cobb Fendley at the following address:

Dale Conger, P.E.
Vice President
Cobb Fendley & Associates, Inc.
13430 Northwest Freeway, Suite 1100
Houston, Texas 77040

All notices and communications under this Agreement shall be mailed by certified mail, return receipt requested, to the City at the following address:

City Manager
City of Tomball

401 W. Market Street
Tomball, Texas 77375

11.
LIMIT OF APPROPRIATION

Prior to the execution of this Agreement, Cobb Fendley has been advised by the City and Cobb Fendley clearly understands and agrees, such understanding and agreement being of the absolute essence to this Agreement, that the City shall have available only those sums as expressly provided for under this Agreement to discharge any and all liabilities which may be incurred by the City and that the total compensation that Cobb Fendley may become entitled to hereunder and the total sum that the City shall become liable to pay to Cobb Fendley hereunder shall not under any conditions, circumstances, or interpretations hereof exceed the amounts as provided for in this Agreement.

12.
SUCCESSORS AND ASSIGNS

The City and Cobb Fendley bind themselves and their successors, executors, administrators, and assigns to the other party of this Agreement and to the successors, executors, administrators and assigns of such other party, in respect to all covenants of this Agreement. Neither the City nor Cobb Fendley shall assign, sublet, or transfer its interest in this Agreement without the written consent of the other. Nothing herein shall be construed as creating any personal liability on the part of any officer or agent of any public body which may be a party hereto.

13.
DISCLOSURE OF INFORMATION

Cobb Fendley shall under no circumstances release any material or information developed in the performance of its services hereunder without the express written permission of the City.

14.
MODIFICATIONS

This instrument, including Exhibits A and B, contains the entire Agreement between the parties relating to the rights herein granted and the obligations herein assumed. Any oral or written representations or modifications concerning this instrument shall be of no force and effect excepting a subsequent modification in writing signed by both parties hereto.

15.
ADDITIONAL SERVICES

If authorized in writing by the City, Cobb Fendley shall furnish, or obtain from others, Additional Services that may be required because of significant changes in the scope, extent or character of the Scope of Work, as defined in Exhibit "A." These Additional Services, plus reimbursable expenses, will be paid for by the Owner on the basis set forth in Exhibit "A," up to the amount authorized in writing by the City.

16.
CONFLICTS OF INTEREST

Pursuant to the requirements of the Chapter 176 of the Texas Local Government Code, Cobb Fendley shall fully complete and file with the City Secretary a Conflict of Interest Questionnaire.

17.
PAYMENT FOR SERVICES AND REIMBURSABLE EXPENSES

Invoices for Basic and Additional Services and reimbursable expenses will be prepared in accordance with Cobb Fendley's standard invoicing practices and will be submitted to the City by Cobb Fendley at least monthly. Invoices are due and payable thirty (30) days after receipt by the City.

18.
MISCELLANEOUS PROVISIONS

A. Venue for any legal actions arising out of this Agreement shall lie exclusively in the federal and state courts of Harris County, Texas.

B. This Agreement is for sole benefit of the City and Cobb Fendley, and no provision of this Agreement shall be interpreted to grant or convey to any other person any benefits or rights.

C. Contractor further covenants and agrees that it does not and will not knowingly employ an undocumented worker. An "undocumented worker" shall mean an individual who, at the time of employment, is not (a) lawfully admitted for permanent residence to the United States, or (b) authorized by law to be employed in that manner in the United States.

IN WITNESS WHEREOF, the City of Tomball, Texas, has lawfully caused this Agreement to be executed by its Mayor; and Cobb Fendley, acting by its duly authorized officer/representative does now sign, execute and deliver this instrument.

EXECUTED on the _____ day of _____ 2011.

ATTEST: **CITY OF TOMBALL, TEXAS**

_____ _____

Doris Speer, City Secretary Gretchen Fagan, Mayor

COBB FENDLEY & ASSOCIATES, INC.

By: _____

Name: Dale Conger, P.E.

Title: Vice President

EXHIBIT "A"

SCOPE OF WORK

AND

BASIS OF COMPENSATION AND REIMBURSABLE EXPENSES

EXHIBIT “B”

INSURANCE

CobbFendley

March 10, 2011

Lori Lakatos, PE, CFM
City of Tomball
Acting City Engineer
501 James Street
Tomball, Texas 77375

Re: Brown Road ROW and Proposed Utility Easement

Dear Mrs. Lakatos:

Cobb, Fendley & Associates, Inc. is pleased to provide you with this proposal for services associated with the above-referenced project. These services will include updated ownership research and acquisition of easements. The proposed Scope of Services, Basis of Compensation and Schedule of Work are outlined below and on the following pages.

SCOPE OF SERVICES

- Order Appraisals from certified appraiser on parcels where no donation was offered. Review appraisals and send to City of Tomball for final review and approval before offer is made
- Meet with property owners to negotiate the acquisition and inquire as to any liens or existing encumbrances
- Prepare all documentation necessary for acquisition, to include cover letters, easements and title curative instruments as needed, *e.g.* release of lien, under the direction of the City of Tomball attorney.
- Meet with property owners to obtain executed easement instruments.
- Record documents in public records.
- Furnish closed file to City of Tomball.
- Prepare paper work and work with City Attorney if Condemnation is necessary.

BASIS OF COMPENSATION

The work outlined in the Scope of Services will be provided on an not to exceed basis at the following rates:

Appraisals $3,000.00 for 1 parcel depending on land type.
The Appraisals will be prepared by Michael J. Urban Real Estate Appraisers

Acquisition $3,000.00 for 1 parcels. The total not to exceed price for acquisition is $3,000.00.

Reimbursable expenses (*e.g.* copies of public records, recording fees, etc.) associated with the work will be invoiced at cost. Mileage will be reimbursed at the standard IRS rate. The total not to exceed for reimbursable is $1,000.00.

Total Not to Exceed authorization is $7,000.00

Title services will be provided by Stewart Title Company of Tomball and they will bill The City of Tomball directly for Title Policy fee is set by State of Texas.

SCHEDULE OF WORK

Cobb, Fendley & Associates, Inc. can begin work on this project upon receiving written authorization to proceed. Four to Eight months will be required to complete the acquisition. In the event of circumstances which may cause unusual delay, the City of Tomball will provide specific instructions on a property by property basis.

If the Scope of Services, Basis of Compensation and Schedule of Work are acceptable, please execute below to authorize commencement of the work. Thank you for the opportunity to submit this proposal. We are looking forward to proceeding with this project.

Respectfully yours,
COBB, FENDLEY & ASSOCIATES, INC.

Arthur D. West
Right of Way Manager

This proposal is accepted by:

_____

Lori Lakatos
Acting City Engineer

_____

Date of Authorization

Regular City Council
Agenda Item
Data Sheet

Meeting Date: March 21, 2011

Topic:

Adopt, on Second Reading, Ordinance No. 2011-01, an Ordinance Amending Chapter 54, Peddlers and Solicitors, of the Code of Ordinances of the City of Tomball, Texas, by Providing Exceptions to the Regulations Established in Chapter 54; by Providing Regulations and Criminal Violations related to any Peddler who Refuses to Leave a Premises upon Notification to Leave or Not to Enter Such Premises; by Providing for Hours of Operation; by Prohibiting Misrepresentations by Peddlers; by Providing Regulations related to the Responsibility of Owners, Tenants and Lessees who Allow Peddlers to Utilize Their Property; by Providing for Compliance with the Home Solicitation Sales Act; by Providing for Regulations Related to Structures Erected or Maintained by Peddlers; by Providing Information Required to Obtain a Permit; by Providing Application and Permit Fees; by Providing Regulations related to the Approval, Denial, Issuance and Appeal of a Permit; by Providing certain Limitations and Prohibiting the Assignability of Permits; by Providing for the Required Contents of a Permit; by Providing for the Duration and Renewal of a Permit; Providing a Penalty in an Amount of Not More Than $500 for Violation of any Provision Hereof; Providing for Savings and Severability; Providing for Publication; and Making other Provisions and Findings related thereto.

Background:

Following Council's discussions of possible amendments to Tomball's Code of Ordinances, Chapter 54, Peddlers and Solicitors and direction to the City attorney and staff, Scott Bounds has incorporated Council's direction/requests into Ordinance No. 2011-01, amending Chapter 54.

Following Council’s request for research and recommendations, the City Attorney has reviewed and removed the provision limiting the number of venders to three per organization and the provision limiting the amount of time a vendor could spend in any given subdivision. Due to potential unintended consequences and unforeseeable situations related to these restrictions, as well as the argument that both of these provisions are unreasonable restrictions on the ability of vendors to conduct business within the City, it would be advisable to remove these two provisions. Although the remaining provisions in the ordinance do restrict the ability of vendors to conduct business within the City, it appears that the City could reasonably argue a rational basis for these other restrictions.As revised, the proposed amendments to Chapter 54 now include:

1. stating more specific exceptions to the ordinance (noncommercial, Boy/Girl Scouts, Little League, etc.);
2. setting more stringent hours and time limits of operation;
3. providing for revokation by the police chief of a permit obtained through false representation;
4. stating the responsibility of property owners who allow the use of their property for solicitation;
5. requiring compliance with the Home Solicitation Sales Act (consumer cancellation rights);
6. requires temporary or permanent structures to comply with City building and zoning codes;
7. requires affidavit of interstate commerce and limited sales tax permit number, if applicable;
8. adds an application fee and increases permit fees;
9. incorporates a background check of the applicant;
10. requires a photo of the individual on each permit;
11. limits a permit to a maximum 6-month period, with one 6-month renewal; and
12. establishes a penalty of $500 for violations of the ordinance.

Origination:

City Council request.

Recommendation:

Adopt Ordinance No. 2011-01 on Second Reading, with revisions as requested by Council.

Funding:

Party(ies) responsible for placing this item on agenda:

City Secretary

ACTION TAKEN

APPROVAL	READINGS PASSED	OTHER
☐ YES ☐ NO	☐ 1ST ☐ 2ND	

ATTACHMENTS:

Ordinance No. 2011-01_Revised_Redlined
Ordinance No. 2011-01_Revised_Clean

ORDINANCE NO. 2011-01

AN ORDINANCE AMENDING CHAPTER 54, PEDDLERS AND SOLICITORS, OF THE CODE OF ORDINANCES OF THE CITY OF TOMBALL, TEXAS, BY PROVIDING EXCEPTIONS TO THE REGULATIONS ESTABLISHED IN CHAPTER 54; BY PROVIDING REGULATIONS AND CRIMINAL VIOLATIONS RELATED TO ANY PEDDLER WHO REFUSES TO LEAVE A PREMISES UPON NOTIFICATION TO LEAVE OR NOT TO ENTER SUCH PREMISES; BY PROVIDING FOR HOURS OF OPERATION; BY PROHIBITING MISREPRESENTATIONS BY PEDDLERS; BY PROVIDING REGULATIONS RELATED TO THE RESPONSIBILITY OF OWNERS, TENANTS AND LESSEES WHO ALLOW PEDDLERS TO UTILIZE THEIR PROPERTY; BY PROVIDING FOR COMPLIANCE WITH THE HOME SOLICITATION SALES ACT; BY PROVIDING FOR REGULATIONS RELATED TO STRUCTURES ERECTED OR MAINTAINED BY PEDDLERS; BY PROVIDING INFORMATION REQUIRED TO OBTAIN A PERMIT; BY PROVIDING APPLICATION AND PERMIT FEES; BY PROVIDING REGULATIONS RELATED TO THE APPROVAL, DENIAL, ISSUANCE AND APPEAL OF A PERMIT; BY PROVIDING CERTAIN LIMITATIONS AND PROHIBITING THE ASSIGNABILITY OF PERMITS; BY PROVIDING FOR THE REQUIRED CONTENTS OF A PERMIT; BY PROVIDING FOR THE DURATION AND RENEWAL OF A PERMIT; PROVIDING A PENALTY IN AN AMOUNT OF NOT MORE THAN $500 FOR VIOLATION OF ANY PROVISION HEREOF; PROVIDING FOR SAVINGS AND SEVERABILITY; PROVIDING FOR PUBLICATION; AND MAKING OTHER PROVISIONS AND FINDINGS RELATED THERETO.

* * * * * * * *

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF TOMBALL, TEXAS:

Section 1. The Code of Ordinances of the City of Tomball is hereby amended by deleting Subsection (4) of Section 54-2 and substituting a new Subsection (4) and adding a new Subsection (5), to read as follows:

"Sec. 54-2. Exceptions to chapter.

* * *

(4) Noncommercial solicitations, sales or distributions for purposes of fundraising or generating profits by religious or charitable organizations, political organizations, conservation organizations, Tomball civic organizations, or other educational organizations, which have their principal place of activity within this city.

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(5) Minors conducting fundraising activities, who represent an organization for the benefit of youths, including but not limited to Boy Scouts, Girl Scouts, Little League groups, and Tomball school groups."

Section 2. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-3 and substituting a new Section 54-3, to read as follows:

"Sec. 54-3. Refusing to leave.

Any peddler who enters upon premises owned, leased or rented by another and refuses to leave such premises after having been notified by the owner or occupant of such premises, or his agent, to leave the same and not return to such premises, or any peddler who enters upon property posted with a "No Peddlers Allowed," "No Solicitations Allowed," or other similar type posted sign, shall be deemed guilty of criminal trespass and/or attempted criminal trespass and may be punished as provided in V.T.C.A., Penal Code §§ 15.01, 30.05."

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Section 3. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-6 and substituting a new Section 54-6, to read as follows:

"Sec. 54-6. Hours of operation.

(a) It shall be unlawful for any peddler engaged in the business of peddling within the city, to go upon any residential premises and ring the doorbell, rap or knock upon the door, or create any sound in a manner calculated to attract the attention of the occupant of the residence prior to 9:00 a.m. or after 8:00 p.m. of any day Monday through Friday, or prior to 10:00 a.m. or after 8:00 p.m. on Saturday, Sunday, or any Federal, State or City of Tomball holiday, except by specific appointment with or invitation from the prospective customer."

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Section 4. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-8 and substituting a new Section 54-8, to read as follows:

"Sec. 54-8. Misrepresentation.

(a) It shall be unlawful for any peddler to make false or fraudulent statements concerning the quality or nature of his goods, wares, merchandise or services for the purpose of inducing another to purchase the same.

(b) If, after a permit has been issued, the City determines that such permit was obtained by false representation in the application or the permit holder has committed any act or practice that violates Subchapter E of Chapter 17 of the Texas Business and Commerce Code, otherwise known as the Texas Deceptive

Trade Practices-Consumer Protection Act, or any crime or misdemeanor involving moral turpitude, or any violation of this Chapter or any other City Ordinance, or any other state or federal law, during the term of the permit, the permit shall be revoked by the Chief of Police."

Section 5. The Code of Ordinances of the City of Tomball is hereby amended by adding a new Section 54-9, to read as follows:

"**Sec. 54-9. Responsibility of owners, tenants and lessees allowing peddlers to utilized property.**

Any property owner, tenant, or lessee who allows a peddler to utilize their private property shall be responsible, along with the peddler, for compliance with the adopted Zoning Ordinance of the City of Tomball. Approval by the Zoning Administrator must be obtained before a permit may be issued."

Section 6. The Code of Ordinances of the City of Tomball is hereby amended by adding a new Section 54-10, to read as follows:

"**Sec. 54-10. Compliance with the Home Solicitation Sales Act.**

A peddler shall comply with the requirements of the Home Solicitation Sales Act provided for in Chapter 601 of the Texas Business and Commerce Code. In addition to any other rights or remedies available, a consumer may cancel a consumer transaction not later than midnight of the third business day after the date the consumer signs an agreement or offer to purchase. A peddler must provide a consumer notice and a complete cancellation form, as provided for in Sections 601.052 and 601.053 of the Texas Business and Commerce Code, at the time a consumer signs an agreement."

Section 7. The Code of Ordinances of the City of Tomball is hereby amended by adding a new Section 54-11, to read as follows:

"**Sec. 54-11. Structures erected or maintained by peddlers.**

It shall be unlawful for any peddler to erect or maintain any permanent or temporary structure without complying with the applicable Building Codes, Zoning Regulations, and other applicable City Codes."

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Section 8. The Code of Ordinances of the City of Tomball is hereby amended by deleting Subsection (12) of Section 54-31 and substituting a new Subsection (12) and adding a new Subsection (13), to read as follows:

"Sec. 54-31. Required.

* * *

(12) Facts showing explicitly that the registrant is engaged in interstate commerce and an affidavit signed by an officer of the corporation, attesting that the registrant is a bona fide representative or employee of the corporation;

(13) The limited sales tax permit number issued by the State Comptroller of Public Accounts, if any."

Section 9. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-37 and substituting a new Section 54-37, to read as follows:

"Sec. 54-37. Application and permit fee.

Before an application will be considered or any permit shall be issued under the provisions of this article, the applicant shall pay a fee, based upon the duration he desires to engage in business in the city, as follows:

Minimum Application Fees:

(1) Per day $ 10.00
(2) Per week $ 25.00
(3) Per month $ 50.00
(4) Per three months $100.00
(5) Per six months $150.00"

Section 10. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-39 and substituting a new Section 54-39, to read as follows:

"Sec. 54-39. Approval, denial, issuance, and appeal.

(a) No permit or license shall be issued under the provisions of this article until the applicant shall have complied with all the provisions and requirements of this chapter. A permit will not be issued until a background check has been completed on the individual.

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(b) The Chief of Police shall cause such investigation of the applicant as he deems necessary for the protection of the public generally, no later than five (5) business days after receipt of the application from the City Secretary's office. If, as a result of such investigation, the applicant's character or business responsibility is found to be unsatisfactory, the Chief of Police shall enter the reasons for his denial on the application and return it to the City Secretary. If, as a result of such investigation, the applicant's character and business responsibility are found to be satisfactory, the Chief of Police shall approve the application and return it to the City Secretary.

(c) Any applicant denied a permit may appeal the denial by filing, within five (5) business days of the denial, a written notice of appeal to the City Manager and, if denial is upheld by the City Manager, the applicant may appeal to the City Council by filing, within five (5) business days of the denial, a written notice of appeal to the City Secretary for placement on the next City Council agenda. The decision of the City Council shall be final."

Section 11. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-40 and substituting a new Section 54-40, to read as follows:

"Sec. 54-40. Limitation.

No peddler's permit or license shall be issued to a corporation, partnership or other impersonal legal entity, but each individual person engaging in the business of peddling within the city shall be required to have a permit or license whether acting for himself or as an agent or representative of another. Permits are not assignable and may not be transferred to another individual."

Section 12. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-41 and substituting a new Section 54-41, to read as follows:

"Sec. 54-41. Contents of permit.

Each permit or license issued under the provisions of this article shall be signed by the city secretary; shall be dated as of the date of its issuance; and shall state the duration or term of such permit or license on the face thereof. Any permit or license not dated and signed as herein provided, or which was issued in violation of this section, shall be void. A permit, when issued, must contain a photo of the individual permit holder."

Section 13. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-43 and substituting a new Section 54-43, to read as follows:

"Sec. 54-43. Duration and renewal.

Every permit or license issued under the provisions of this article shall be valid for the period of time stated therein, but in no event shall any such permit or license be issued for a period of time in excess of six (6) months. A peddler shall only be allowed one renewal of a permit in any given twelve (12) month period from the date of issuance of the permit."

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Section 14. All ordinances or parts of ordinances inconsistent or in conflict herewith are, to the extent of such inconsistency or conflict, hereby repealed.

Section 15. It is the intent of the City that this Ordinance shall comply in all respects with the applicable provisions of the United States Constitution, the Texas Constitution, and the Charter of the City of Tomball. In the event any clause, phrase, provision, sentence, or part of this Ordinance or the application of the same to any person or circumstance shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Tomball, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, whether there be one or more parts.

Section 16. Any person, firm or corporation that knowingly violates any of the provisions or terms of this Ordinance shall be subject to the same penalty as provided for in the Code of Ordinances of the City of Tomball, Texas, and, upon conviction, shall be punished by a fine not to exceed five hundred ($500.00) dollars for each offense.

Section 17. This Ordinance shall take effect immediately from and after its passage and the publication of the caption hereof, as provided by law and the City's home rule Charter.

FIRST READING:

READ, PASSED AND APPROVED AS SET OUT BELOW AT THE MEETING OF THE CITY COUNCIL OF THE CITY OF TOMBALL HELD ON THE 7TH DAY OF MARCH 2011.

COUNCILMAN QUINN	AYE
COUNCILMAN STOLL	AYE
COUNCILMAN BROWN	AYE
COUNCILMAN TOWNSEND	AYE
COUNCILMAN DODSON	AYE

SECOND READING:

READ, PASSED AND APPROVED AS SET OUT BELOW AT THE MEETING OF THE CITY COUNCIL OF THE CITY OF TOMBALL HELD ON THE _____ DAY OF _____ 2011.

COUNCILMAN QUINN	_____
COUNCILMAN STOLL	_____
COUNCILMAN BROWN	_____
COUNCILMAN TOWNSEND	_____
COUNCILMAN DODSON	_____

_____
Gretchen Fagan, Mayor

ATTEST:

_____
Doris Speer, City Secretary

ORDINANCE NO. 2011-01

AN ORDINANCE AMENDING CHAPTER 54, PEDDLERS AND SOLICITORS, OF THE CODE OF ORDINANCES OF THE CITY OF TOMBALL, TEXAS, BY PROVIDING EXCEPTIONS TO THE REGULATIONS ESTABLISHED IN CHAPTER 54; BY PROVIDING REGULATIONS AND CRIMINAL VIOLATIONS RELATED TO ANY PEDDLER WHO REFUSES TO LEAVE A PREMISES UPON NOTIFICATION TO LEAVE OR NOT TO ENTER SUCH PREMISES; BY PROVIDING FOR HOURS OF OPERATION; BY PROHIBITING MISREPRESENTATIONS BY PEDDLERS; BY PROVIDING REGULATIONS RELATED TO THE RESPONSIBILITY OF OWNERS, TENANTS AND LESSEES WHO ALLOW PEDDLERS TO UTILIZE THEIR PROPERTY; BY PROVIDING FOR COMPLIANCE WITH THE HOME SOLICITATION SALES ACT; BY PROVIDING FOR REGULATIONS RELATED TO STRUCTURES ERECTED OR MAINTAINED BY PEDDLERS; BY PROVIDING INFORMATION REQUIRED TO OBTAIN A PERMIT; BY PROVIDING APPLICATION AND PERMIT FEES; BY PROVIDING REGULATIONS RELATED TO THE APPROVAL, DENIAL, ISSUANCE AND APPEAL OF A PERMIT; BY PROVIDING CERTAIN LIMITATIONS AND PROHIBITING THE ASSIGNABILITY OF PERMITS; BY PROVIDING FOR THE REQUIRED CONTENTS OF A PERMIT; BY PROVIDING FOR THE DURATION AND RENEWAL OF A PERMIT; PROVIDING A PENALTY IN AN AMOUNT OF NOT MORE THAN $500 FOR VIOLATION OF ANY PROVISION HEREOF; PROVIDING FOR SAVINGS AND SEVERABILITY; PROVIDING FOR PUBLICATION; AND MAKING OTHER PROVISIONS AND FINDINGS RELATED THERETO.

* * * * * * * *

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF TOMBALL, TEXAS:

Section 1. The Code of Ordinances of the City of Tomball is hereby amended by deleting Subsection (4) of Section 54-2 and substituting a new Subsection (4) and adding a new Subsection (5), to read as follows:

"Sec. 54-2. Exceptions to chapter.

* * *

(4) Noncommercial solicitations, sales or distributions for purposes of fundraising or generating profits by religious or charitable organizations, political organizations, conservation organizations, Tomball civic organizations, or other educational organizations, which have their principal place of activity within this city.

(5) Minors conducting fundraising activities, who represent an organization for the benefit of youths, including but not limited to Boy Scouts, Girl Scouts, Little League groups, and Tomball school groups."

Section 2. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-3 and substituting a new Section 54-3, to read as follows:

"Sec. 54-3. Refusing to leave.

Any peddler who enters upon premises owned, leased or rented by another and refuses to leave such premises after having been notified by the owner or occupant of such premises, or his agent, to leave the same and not return to such premises, or any peddler who enters upon property posted with a "No Peddlers Allowed," "No Solicitations Allowed," or other similar type posted sign, shall be deemed guilty of criminal trespass and/or attempted criminal trespass and may be punished as provided in V.T.C.A., Penal Code §§ 15.01, 30.05."

Section 3. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-6 and substituting a new Section 54-6, to read as follows:

"Sec. 54-6. Hours of operation.

(a) It shall be unlawful for any peddler engaged in the business of peddling within the city, to go upon any residential premises and ring the doorbell, rap or knock upon the door, or create any sound in a manner calculated to attract the attention of the occupant of the residence prior to 9:00 a.m. or after 8:00 p.m. of any day Monday through Friday, or prior to 10:00 a.m. or after 8:00 p.m. on Saturday, Sunday, or any Federal, State or City of Tomball holiday, except by specific appointment with or invitation from the prospective customer."

Section 4. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-8 and substituting a new Section 54-8, to read as follows:

"Sec. 54-8. Misrepresentation.

(a) It shall be unlawful for any peddler to make false or fraudulent statements concerning the quality or nature of his goods, wares, merchandise or services for the purpose of inducing another to purchase the same.

(b) If, after a permit has been issued, the City determines that such permit was obtained by false representation in the application or the permit holder has committed any act or practice that violates Subchapter E of Chapter 17 of the Texas Business and Commerce Code, otherwise known as the Texas Deceptive

Trade Practices-Consumer Protection Act, or any crime or misdemeanor involving moral turpitude, or any violation of this Chapter or any other City Ordinance, or any other state or federal law, during the term of the permit, the permit shall be revoked by the Chief of Police."

Section 5. The Code of Ordinances of the City of Tomball is hereby amended by adding a new Section 54-9, to read as follows:

"Sec. 54-9. Responsibility of owners, tenants and lessees allowing peddlers to utilized property.

Any property owner, tenant, or lessee who allows a peddler to utilize their private property shall be responsible, along with the peddler, for compliance with the adopted Zoning Ordinance of the City of Tomball. Approval by the Zoning Administrator must be obtained before a permit may be issued."

Section 6. The Code of Ordinances of the City of Tomball is hereby amended by adding a new Section 54-10, to read as follows:

"Sec. 54-10. Compliance with the Home Solicitation Sales Act.

A peddler shall comply with the requirements of the Home Solicitation Sales Act provided for in Chapter 601 of the Texas Business and Commerce Code. In addition to any other rights or remedies available, a consumer may cancel a consumer transaction not later than midnight of the third business day after the date the consumer signs an agreement or offer to purchase. A peddler must provide a consumer notice and a complete cancellation form, as provided for in Sections 601.052 and 601.053 of the Texas Business and Commerce Code, at the time a consumer signs an agreement."

Section 7. The Code of Ordinances of the City of Tomball is hereby amended by adding a new Section 54-11, to read as follows:

"Sec. 54-11. Structures erected or maintained by peddlers.

It shall be unlawful for any peddler to erect or maintain any permanent or temporary structure without complying with the applicable Building Codes, Zoning Regulations, and other applicable City Codes."

Section 8. The Code of Ordinances of the City of Tomball is hereby amended by deleting Subsection (12) of Section 54-31 and substituting a new Subsection (12) and adding a new Subsection (13), to read as follows:

"Sec. 54-31. Required.

* * *

(12) Facts showing explicitly that the registrant is engaged in interstate commerce and an affidavit signed by an officer of the corporation, attesting that the registrant is a bona fide representative or employee of the corporation;

(13) The limited sales tax permit number issued by the State Comptroller of Public Accounts, if any."

Section 9. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-37 and substituting a new Section 54-37, to read as follows:

"Sec. 54-37. Application and permit fee.

Before an application will be considered or any permit shall be issued under the provisions of this article, the applicant shall pay a fee, based upon the duration he desires to engage in business in the city, as follows:

Minimum Application Fees:

(1)	Per day	$ 10.00
(2)	Per week	$ 25.00
(3)	Per month	$ 50.00
(4)	Per three months	$100.00
(5)	Per six months	$150.00"

Section 10. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-39 and substituting a new Section 54-39, to read as follows:

"Sec. 54-39. Approval, denial, issuance, and appeal.

(a) No permit or license shall be issued under the provisions of this article until the applicant shall have complied with all the provisions and requirements of this chapter. A permit will not be issued until a background check has been completed on the individual.

(b) The Chief of Police shall cause such investigation of the applicant as he deems necessary for the protection of the public generally, no later than five (5) business days after receipt of the application from the City Secretary's office. If, as a result of such investigation, the applicant's character or business responsibility is found to be unsatisfactory, the Chief of Police shall enter the reasons for his denial on the application and return it to the City Secretary. If, as a result of such investigation, the applicant's character and business responsibility are found to be satisfactory, the Chief of Police shall approve the application and return it to the City Secretary.

(c) Any applicant denied a permit may appeal the denial by filing, within five (5) business days of the denial, a written notice of appeal to the City Manager and, if denial is upheld by the City Manager, the applicant may appeal to the City Council by filing, within five (5) business days of the denial, a written notice of appeal to the City Secretary for placement on the next City Council agenda. The decision of the City Council shall be final."

Section 11. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-40 and substituting a new Section 54-40, to read as follows:

"Sec. 54-40. Limitation.

No peddler's permit or license shall be issued to a corporation, partnership or other impersonal legal entity, but each individual person engaging in the business of peddling within the city shall be required to have a permit or license whether acting for himself or as an agent or representative of another. Permits are not assignable and may not be transferred to another individual."

Section 12. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-41 and substituting a new Section 54-41, to read as follows:

"Sec. 54-41. Contents of permit.

Each permit or license issued under the provisions of this article shall be signed by the city secretary; shall be dated as of the date of its issuance; and shall state the duration or term of such permit or license on the face thereof. Any permit or license not dated and signed as herein provided, or which was issued in violation of this section, shall be void. A permit, when issued, must contain a photo of the individual permit holder."

Section 13. The Code of Ordinances of the City of Tomball is hereby amended by deleting Section 54-43 and substituting a new Section 54-43, to read as follows:

"Sec. 54-43. Duration and renewal.

Every permit or license issued under the provisions of this article shall be valid for the period of time stated therein, but in no event shall any such permit or license be issued for a period of time in excess of six (6) months. A peddler shall only be allowed one renewal of a permit in any given twelve (12) month period from the date of issuance of the permit."

Section 14. All ordinances or parts of ordinances inconsistent or in conflict herewith are, to the extent of such inconsistency or conflict, hereby repealed.

Section 15. It is the intent of the City that this Ordinance shall comply in all respects with the applicable provisions of the United States Constitution, the Texas Constitution, and the Charter of the City of Tomball. In the event any clause, phrase, provision, sentence, or part of this Ordinance or the application of the same to any person or circumstance shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Tomball, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, whether there be one or more parts.

Section 16. Any person, firm or corporation that knowingly violates any of the provisions or terms of this Ordinance shall be subject to the same penalty as provided for in the Code of Ordinances of the City of Tomball, Texas, and, upon conviction, shall be punished by a fine not to exceed five hundred ($500.00) dollars for each offense.

Section 17. This Ordinance shall take effect immediately from and after its passage and the publication of the caption hereof, as provided by law and the City's home rule Charter.

FIRST READING:

READ, PASSED AND APPROVED AS SET OUT BELOW AT THE MEETING OF THE CITY COUNCIL OF THE CITY OF TOMBALL HELD ON THE 7TH DAY OF MARCH 2011.

COUNCILMAN QUINN	AYE
COUNCILMAN STOLL	AYE
COUNCILMAN BROWN	AYE
COUNCILMAN TOWNSEND	AYE
COUNCILMAN DODSON	AYE

SECOND READING:

READ, PASSED AND APPROVED AS SET OUT BELOW AT THE MEETING OF THE CITY COUNCIL OF THE CITY OF TOMBALL HELD ON THE _____ DAY OF _____ 2011.

COUNCILMAN QUINN	_____
COUNCILMAN STOLL	_____
COUNCILMAN BROWN	_____
COUNCILMAN TOWNSEND	_____
COUNCILMAN DODSON	_____

_____
Gretchen Fagan, Mayor

ATTEST:

_____
Doris Speer, City Secretary

Regular City Council
Agenda Item
Data Sheet

Meeting Date: March 21, 2011

Topic:

Approve, as a Project of the Corporation, an Agreement with Waukesha-Pearce Industries to make direct incentives to, or expenditures for, the creation or retention of primary jobs and that are found by the Board of Directors to be required or suitable for the development, retention, or expansion of manufacturing and industrial facilities: to wit: Waukesha-Pearce Industries expansion and development of its manufacturing facility located at 1720 Hicks Street, Tomball, Texas. The estimated amount of expenditures for such Project is $12,000.

Background:

All expenditures of the Tomball Economic Development Corporation (TEDC) sales tax revenue must first be approved as a "Project of the Corporation." At its regular meeting on February 22, 2011, the TEDC Board of Directors did take formal action to approve, as a Project of the TEDC, an agreement with Waukesha-Pearce Industries for the expansion of its facility at 1720 Hicks Street. The City Council of Tomball has final approval authority over all projects and agreements of the TEDC.

Origination:

Tomball Economic Development Corporation Board of Directors

Recommendation:

Approval, as a Project of the Corporation, the Performance Agreement between the TEDC and Waukesha-Pearce Industries.

Funding: Yes

Account Number: Grant Funds Available

Party(ies) responsible for placing this item on agenda:

Betty Reinbeck

ACTION TAKEN

APPROVAL	READINGS PASSED	OTHER
☐ YES ☐ NO	☐ 1ST ☐ 2ND	

ATTACHMENTS:

Cover Memo
Request Letter
Performance Agreement
Economic Impact Model

TOMBALL
ECONOMIC DEVELOPMENT CORPORATION

TO: Board of Directors
Tomball Economic Development Corporation

FROM: Betty Reinbeck
Executive Director

MEETING DATE: February 22, 2011

SUBJECT: Waukesha-Pearce Industries, Inc.
Expansion Project

Waukesha-Pearce Industries, Inc. is planning to expand its operation at its Tomball location at 1720 Hicks Street, and we have received a request for grant funding assistance from them for this renovation project, which will also create four (4) new primary jobs in Tomball.

Waukesha-Pearce Industries, Inc. is a distributor and service center for Waukesha-Dresser engines and parts and Komatsu construction equipment and parts. The specific endeavor in Tomball is the sale and service of Komatsu equipment.

The property size is 5.786 acres and includes a shop building of approximately 3100 square feet and an office/parts building of approximately 8600 square feet. The remaining land is used for display, storage, access, and egress.

As per the grant funding assistance request dated February 7, 2011, Waukesha-Pearce Industries, Inc., which is headquartered in Houston, Texas, is planning to renovate the existing shop building and add an 80' x 100' building to the east side of the building.

This project will add approximately four (4) new primary jobs to the existing ten (10) jobs at this location, and the proposed grant funding amount is based on the creation of these four (4) primary jobs.

An economic impact model form is included with the agreement to show the five (5) year impact of this expansion project on Tomball's economy.

If the agreement between the TEDC and Waukesha-Pearce Industries, Inc. is approved as a Project of the Corporation, the grant funding amount will be $3,000 per each new primary job created, not to exceed $12,000.

WAUKESHA-PEARCE INDUSTRIES, INC.
P.O. BOX 35068 • 12320 S. MAIN • HOUSTON, TX 77235-5068
713/723-1050 • FAX 713/551-0454

Tomball Economic Development Corporation
P.O. Box 820
Tomball, TX 77377-0820
Attn: Betty Reinbeck

Ref: TEDC Grant Assistance

February 7, 2011

Dear Ms. Reinbeck,

As the representative of Waukesha-Pearce Industries, Inc. I would like to express our intent to expand our operation in Tomball. We are a distributor and service center for Waukesha-Dresser engines and parts and Komatsu construction equipment and parts. Our specific endeavor in Tomball is the sale and service of Komatsu equipment. Our NAICS code is 423830. The President of the company is Louis M. Pearce, III (713-551-0307). G. Mike Green is our Vice President-Operations-Construction Machinery Division (713-551-0502). Albert H. Bentley is our vice President-Chief Financial Officer (713-551-0350).

The location of our plant is 1720 Hicks Street, located near the intersection of S.H. 249 and Hicks Street on the north side of Tomball in ZIP area 77375. The property size is 5.786 acres and includes a shop building of approximately 3100 square feet and an office/parts building of approximately 8600 square feet. The remaining land is used for display, storage, access and egress. The property is currently valued at $797,925.00. Currently, the equipment and furniture is valued at $228,155.00 and our saleable inventory at $2,232,526.00.

The first phase of our plan involves the renovation of the existing shop building. It would be reconfigured to include a reception area, admin/sales and service offices, a parts sales/storage area and remodeled restrooms. An 80' x 100' section would be added to the East side of the building. This area would include a shop locker room, a tool room, an inventory control office and eight 20' x 36' service bays with overhead crane service. The exterior of the existing building would be upgraded to match the architectural design of the addition. The total area of the new structure would be approximately 11,100 square feet. The estimated cost of this phase is $1, 025,000.00. The second segment of this plan is the demolition of the existing office/parts building. The removal of the

building will give us more public visibility and an additional display area. We will attempt to preserve as much of the flora and green border as possible, further enhancing the overall site appearance.

Our objective is to begin this project in April, 2011 and to be complete by October, 2011.

Our current number of employees at this site is ten. After completion of this facility, and with a positive economic recovery, we would expect to add an additional four employees. The average wage of these new jobs would be approximately $20.00 per hour.

In lieu of our efforts to maximize the potential of this site and add to the economic viability of your City, we seek your approval for grant assistance with regard to the façade, a new sign and additional lighting and landscaping. Please call me with any questions or suggestions.

Thank you for your attention,

Peter W. Kozak
Director – Administrative Services
713-551-0380
kozakp@wpi.com

Attachments -
#1 - Special Warranty Deed
#2 - Boundary Deed & Building Plans
#3 - Letter of Compliance (Texas HB 1196)
#4 - Acknowledgment of Receipt of Guidelines

AGREEMENT

THE STATE OF TEXAS §
§ KNOW ALL MEN BY THESE PRESENTS:
COUNTY OF HARRIS §

This Agreement (the "Agreement") is made and entered into by and between the **Tomball Economic Development Corporation**, an industrial development corporation created pursuant to Tex. Rev. Civ. Stat. Ann. Art. 5190.6, Section 4B, now Chapter 505 of the Texas Local Government Code, located in Harris County, Texas (the "TEDC"), and **Waukesha-Pearce Industries, Inc.** (the "Company"), 12320 South Main Street, Houston, Texas 77235.

W I T N E S S E T H :

WHEREAS, it is the established policy of the TEDC to adopt such reasonable measures from time-to-time as are permitted by law to endeavor to attract industry, create and retain primary jobs, expand the growth of the City of Tomball (the "City"), and thereby enhance the economic stability and growth of the City; and

WHEREAS, the Company owns a 5.786 acre tract of land within the City, located at 1720 Hicks Street, Tomball, Texas 77375 (the "Property"), and more particularly described in Exhibit "A," attached hereto and made a part hereof; and

WHEREAS, the Company proposes to expand its current operation at the Property, and as part of the process, plans to expend funds to renovate an existing shop building and construct an additional 80' x 100' building to the east side of the building (the "Improvements"), more particularly described in Exhibit "B" attached hereto and made a part hereof.

WHEREAS, the Company also proposes to maintain the current ten (10) jobs at the Property and create four (4) new employment positions at the Property in conjunction with the expansion of its business operations at the Property; and

WHEREAS, the TEDC agrees to provide to the Company the sum of Twelve Thousand Dollars ($12,000.00) to assist in the construction of the Improvements and the addition of the four (4) new employees at the Property; and

WHEREAS, the Company has agreed, in exchange and as consideration for the funding, to satisfy and comply with certain terms and conditions; and

WHEREAS, this expenditure is found by the Board of Directors of the TEDC to be suitable for the expansion of the business operations at the Property and the creation and retention of primary jobs at the Property;

NOW, THEREFORE, in consideration of the premises and the mutual benefits and obligations set forth herein, including the recitals set forth above, the TEDC and the Company agree as follows:

1.

The Company covenants and agrees that it will construct the Improvements and operate and maintain the proposed business on the Property for a term of at least five (5) years, and will for such term, except as provided by paragraph 4 hereof, maintain ten (10) employees and create (4) new jobs on the Property at the prevailing wage.

2.

The Company also covenants and agrees that construction of the Improvements, the addition of the four (4) new employees, and obtaining all necessary occupancy permits from the City shall occur within twelve (12) months from the Effective Date of this Agreement. Extensions of these deadlines, due to any extenuating circumstance or uncontrollable delay, may be granted at the sole discretion of the Board of Directors of the TEDC.

3.

The Company further covenants and agrees that it does not and will not knowingly employ an undocumented worker. An "undocumented worker" shall mean an individual who, at the time of employment, is not (a) lawfully admitted for permanent residence to the United States, or (b) authorized by law to be employed in that manner in the United States.

4.

In consideration of the Company's representations, promises, and covenants, TEDC agrees to grant to the Company the sum of Twelve Thousand Dollars ($12,000.00) to fund a portion of the cost of the Improvements and the addition of the four (4) new employees to the Company's business operations on the Property. The TEDC agrees to distribute such funds to the Company within thirty (30) days of receipt of a letter from the Company requesting such payment, which letter shall also include: (a) a copy of the City's occupancy permit for the Improvements to the Property; (b) proof that the Company has added the number of employees indicated above to its business operations on the Property, as evidenced by copies of Texas Workforce Commission form C-3 or Internal Revenue Service Form 941; (c) verification from the City acknowledging that all necessary plats, plans, and specifications have been received, reviewed, and approved; (d) verification that the Improvements have been constructed in accordance with the approved plans and specifications; and, (e) an affidavit stating that all contractors and subcontractors providing work and/or materials in the construction of the Improvements have been paid and any and all liens and claims regarding such work have been released.

In the event the number of jobs originally projected is not met, the amount of the funding provided to the Company by the TEDC will be reduced on a pro rata basis to reflect the actual number of jobs at the time of the request for disbursement of funds.

5.

It is understood and agreed by the parties that, in the event of a default by the Company on any of its obligations under this Agreement, the Company shall reimburse the TEDC the full amount paid to the Company by the TEDC, with interest at the rate equal to the 90-day Treasury Bill plus ½% per annum, within thirty (30) days after the TEDC notifies the Company of the default. It is further understood and agreed by the parties that if the Company is convicted of a violation under 8 U.S.C. Section 1324a(f), the Company will reimburse the TEDC the full amount paid to the Company, with interest at the rate equal to the 90-day Treasury Bill plus ½% per annum, within thirty (30) days after the TEDC notifies the Company of the violation.

The Company shall also reimburse the TEDC for any and all reasonable attorney's fees and costs incurred by the TEDC as a result of any action required to obtain reimbursement of such funds.

6.

This Agreement shall inure to the benefit of and be binding upon the TEDC and the Company, and upon the Company's successors and assigns, affiliates, and subsidiaries, and shall remain in force whether the Company sells, assigns, or in any other manner disposes of, either voluntarily or by operation of law, all or any part of the Property and the agreements herein contained shall be held to be covenants running with the Property for so long as this Agreement, or any extension thereof, remains in effect.

7.

Any notice provided or permitted to be given under this Agreement must be in writing and may be served by (i) depositing the same in the United States mail, addressed to the party to be notified, postage prepaid, registered or certified mail, return receipt requested; or (ii) by delivering the same in person to such party; or (iii) by overnight or messenger delivery service that retains regular records of delivery and receipt; or (iv) by facsimile; provided a copy of such notice is sent within one (1) day thereafter by another method provided above. The initial addresses of the parties for the purpose of notice under this Agreement shall be as follows:

If to City:	Tomball Economic Development Corporation 401 W. Market Street Tomball, Texas 77375 Attn: President, Board of Directors
If to Company:	Waukesha-Pearce Industries, Inc. P. O. Box 35068 Houston, Texas 77235-5068 Attn: Peter W. Kozak, Director - Administrative Services

8.

This Agreement shall be performable and enforceable in Harris County, Texas, and shall be construed in accordance with the laws of the State of Texas.

9.

Except as otherwise provided in this Agreement, this Agreement shall be subject to change, amendment or modification only in writing, and by the signatures and mutual consent of the parties hereto.

10.

The failure of any party to insist in any one or more instances on the performance of any of the terms, covenants or conditions of this Agreement, or to exercise any of its rights, shall not be construed as a waiver or relinquishment of such term, covenant, or condition, or right with respect to further performance.

11.

This Agreement shall bind and benefit the respective Parties and their legal successors and shall not be assignable, in whole or in part, by any party without first obtaining written consent of the other party.

12.

In the event any one or more words, phrases, clauses, sentences, paragraphs, sections, or other parts of this Agreement, or the application thereof to any person, firm, corporation, or circumstance, shall be held by any court of competent jurisdiction to be invalid or unconstitutional for any reason, then the application, invalidity or unconstitutionality of such words, phrases, clauses, sentences, paragraphs, sections, or other parts of this Agreement shall be deemed to be independent of and severable from the remainder of this Agreement, and the validity of the remaining parts of this Agreement shall not be affected thereby.

IN TESTIMONY OF WHICH, THIS AGREEMENT has been executed by the parties on this _____ day of _____ 2011 (the "Effective Date").

WAUKESHA-PEARCE INDUSTRIES, INC.

By: _____

Name: Peter W. Kozak

Title: Director – Administrative Services

ATTEST:

By: _____

Name: _____

Title: _____

TOMBALL ECONOMIC DEVELOPMENT CORPORATION

By: _____

Name: Gretchen Fagan

Title: President, Board of Directors

ATTEST:

By: _____

Name: James D. Geer

Title: Secretary, Board of Directors

ACKNOWLEDGMENT

THE STATE OF TEXAS §
§
COUNTY OF HARRIS §

This instrument was acknowledged before me on the _____ day of _____ 2011, by Peter W. Kozak, Director-Administrative Services of Waukesha-Pearce Industries, Inc. for and on behalf of said company.

_____
Notary Public in and for the State of Texas

My Commission Expires: _____

(SEAL)

ACKNOWLEDGMENT

THE STATE OF TEXAS §
§
COUNTY OF HARRIS §

This instrument was acknowledged before me on the _____ day of _____ 2011, by Gretchen Fagan, President of the Board of Directors of the Tomball Economic Development Corporation, for and on behalf of said Corporation.

_____
Notary Public in and for the State of Texas

My Commission Expires: _____

(SEAL)

Exhibit "A"

Legal Description of Property

A 5.786 TRACT OUT OF 9.225 ACRES IN THE JOSEPH HOUSE SURVEY, ABSTRACT No. 34, IN HARRIS COUNTY, TEXAS, BEING OUT OF THE RESIDUE OF THAT CERTAIN 8.0 ACRE TRACT DESCRIBED IN DEED FROM E. HORTON JONES, ET UX TO HOUSTON LIGHTING AND POWER Co., DATED DECEMBER 11, 1964, AND RECORDED IN VOL. 5765, PG. 500, DEED RECORDS OF HARRIS COUNTY, TEXAS, AND OUT OF THAT CERTAIN 2.1987 ACRE TRACT DESCRIBED IN DEED FROM NEIL R. MACINTYRE, ET AL, TO HOUSTON LIGHTING AND POWER CO., DATED FEBRUARY 22, 1972, AND FILED UNDER COUNTY CLERK'S FILE NO. D544422 & FILM CODE No. 141-32-2229 IN THE OFFICIAL PUBLIC RECORDS OF REAL PROPERTY OF HARRIS COUNTY, TEXAS; SAID 5.786 ACRE TRACT BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: (ALL COORDINATES AND BEARINGS HEREIN STATED ARE REFERRED TO THE TEXAS COORDINATE SYSTEM OF 1983, SOUTH CENTRAL ZONE, AS DEFINED IN THE TEXAS NATURAL RESOURCES CODE, SECTION 21.017, ET SEQ., TO CONVERT TO SURFACE FROM GRID MULTIPLY BY A COMBINATION SCALE FACTOR OF 0.999951134)

.

Exhibit "B"

Improvements

The existing shop building will be renovated and reconfigured to include a reception area, administration, sales, and service offices, a parts sales/storage area and remodeled restrooms.

An 80' x 100' building will be added to the east side of the building. This area will include a shop locker room, a tool room, an inventory control office, and eight (8) 20' x 36' service bays with overhead crane service. The exterior of the existing building will be upgraded to match the architectural design of the addition. The total area of the new structure will be approximately 11,100 square feet.

The existing office/parts building will be demolished after the above work has been completed. The removal of this building will give Waukesha-Pearce Industries, Inc. more public visibility and an additional display area.

WAUKESHA-PEARCE INDUSTRIES, INC.

TOMBALL ECONOMIC DEVELOPMENT CORPORATION

CITY OF TOMBALL ECONOMIC IMPACT MODEL

Average Annual Wage Assessment:

Number of Employees		Average Hourly Wage	Average Weekly Wages	Total Annual Wages (52 wks.per Yr.)
Existing:	10	20.00		
Prospective:	4	20.00		
TOTAL:	14	20.00	11,200	582,400
Federal Income and FICA Taxes at 28% deducted				163,072
Fixed payments for rent, insurance, etc. at 25%				145,600
Net Disposable Annual Income				273,728

Total Return to Local Government by Annual Payroll:

Local Sales Tax Rate of 2% on Fixed Payments:	2,912
Average Multiplier effect of the Dollar turning over 3.5 times to Calculate the Total Annual Local Sales Tax Impact:	10,192

Annual Sales Tax Impact:

Value of Retail Sales	Sales Tax	
0	2.00%	0

Estimated Property Tax Impact:

Value of Property and Improvements	Tomball Tax Rate (per $100)	
1,822,925	0.25146	4,584
Annual Economic Impact of Manufacturing Expansion		14,776
Economic Impact over a Five Year Period		73,879

Regular City Council
Agenda Item
Data Sheet

Meeting Date: March 21, 2011

Topic:

Consideration and possible action regarding **ZONING CASE P11-302:** Request by David Kelly, on behalf of CMH Homes, Inc. (Clayton Homes), to amend the City's Comprehensive Zoning Ordinance to rezone approximately 2.57 acres of land, legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, within the City of Tomball, Harris County, Texas, generally located on the westerly side of State Highway 249, southerly of Alice Road, from the AG-Agricultural District to the C-Commercial District.

- Conduct a Public Hearing on **ZONING CASE P11-302**
- Adopt on First Reading, Ordinance No. 2011-02, an Ordinance of the City of Tomball, Texas, Amending its Comprehensive Zoning Ordinance by Changing the Zoning District Classification of Approximately 2.57 Acres of Land, Legally Described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, within the City of Tomball, Harris County, Texas, From the AG-Agricultural District to the C-Commercial District; Said Property Being Generally Located on the westerly side of State Highway 249, southerly of Alice Road; Providing for the Amendment of the Official Zoning Map of the City; Providing for Severability; Providing for a Penalty of an amount not to exceed $2,000 for each day of violation of any Provision Hereof, Making Findings of Fact; and Providing for other Related Matters.

Background:

On January 21, 2011, the Engineering and Planning Department received an application to rezone the subject site from the Agricultural District to the Commercial District. The property is currently used by Clayton Homes as a modular and manufactured home sales facility consisting of numerous display homes for sale as well as a sales office.

The site was annexed into the City of Tomball as part of the 172.812-acre Tomball Expressway Road Right-of-Way annexation in December of 2008. At the time of annexation, the property was given an interim zoning classification of Agricultural.

The applicant is now requesting to rezone the property to the Commercial District. The uses in the general vicinity of the site are primarily commercial and retail in nature. As such, the rezoning and permitted land uses in the Commercial District would be in keeping with the existing and intended land uses in the vicinity.

After reviewing the rezoning request, staff prepared a report to the Planning and Zoning Commission recommending approval. On March 14, 2011, the Planning and Zoning Commission, after conducting a public hearing on this request, voted 4-0 to approve Zoning Case P11-302. This case is now being forwarded to City Council for consideration and possible action.

Origination:

David Kelly, on behalf of CMH Homes, Inc. (Clayton Homes)

Recommendation:

In its formal recommendation to City Council, the Planning and Zoning Commission voted 4-0 to approve Zoning Case P11-302, as recommended by staff, based on the following findings: a. The proposed zoning of Commercial District is compatible with the land uses in the vicinity. b. The proposed zoning of Commercial District is compatible with the Tomball Comprehensive Plan. c. The proposed zoning of Commercial District

will not negatively impact public schools, streets, water supply, sanitary sewers, or other utilities to the area.
d. There is sufficient utility capacity to service this site.

Funding: No

Funds will be transferred from Account: to Account:

Party(ies) responsible for placing this item on agenda:

Engineering and Planning Department

ACTION TAKEN

APPROVAL	READINGS PASSED	OTHER
☐ YES ☐ NO	☐ 1ST ☐ 2ND	

ATTACHMENTS:

Staff Report P11-302
Draft Ordinance No. 2011-02
Notice of Public Hearing
Property Owner Notification Letter

Rezoning Staff Report

Planning and Zoning Commission Hearing Date: March 14, 2011

Rezoning Case:	P11-302
Property Owner(s):	CMH Homes, Inc.
Applicant(s):	David Kelly
Legal Description:	Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, within the City of Tomball, Harris County, Texas
Location:	27225 State Highway 249 (Generally located on the westerly side of State Highway 249, southerly of Alice Road)
Area:	2.57 acres
Present Zoning and Use:	AG-Agricultural District / Modular and Manufactured Home Display and Sales
Comp Plan Designation:	Commercial
Proposed Zoning and Use:	C-Commercial District / Manufactured Home Display and Sales
	It should be noted, that any use permitted in the proposed district would be allowed at this location if the zoning is changed. Furthermore, the Planning & Zoning Commission may consider zoning classifications other than that sought by the applicant for this property.

Adjacent Zoning & Land Uses:

North:	AG-Agricultural and C-Commercial Districts / Mini-warehouse
South:	AG-Agricultural and C-Commercial Districts / Tool rental
East:	C-Commercial District / SH 249 ROW, shopping center, Tractor Supply Co., and Palm Harbor Homes
West:	AG-Agricultural and C-Commercial Districts / Mini-warehouse and undeveloped

BACKGROUND

The subject site is legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, within the City of Tomball, Harris County, Texas totaling approximately 2.57 acres. The site's physical address is 27225 State Highway 249 and is generally located on the westerly side of State Highway 249, southerly of Alice Road (Exhibit "A"). The property is currently used by Clayton Homes as a modular and

manufactured home sales facility consisting of a number of display homes for sale as well as a sales office (Exhibit "C").

On December 1, 2008, the subject site was annexed into the City of Tomball as part of the 172.812 acre S.H. 249 Bypass (Tomball Expressway) Road Right-of-Way annexation (Exhibit "I"). Because the subject site was annexed after the passage of the Zoning Ordinance and because a concurrent rezoning request was not filed by the property owner, the subject site was given a zoning classification of AG-Agricultural District. Section 6.1 of the Zoning Ordinance states, "For any period of time following official annexation by the City until a zoning action has been officially adopted to zone the land, the interim zoning of the land shall be considered to be Agricultural ('AG'), and all zoning and development regulations of the 'AG' zoning district shall be adhered to with respect to the development and use of the land."

On May 14, 2010, a site plan application was submitted to the Engineering & Planning Department to permit a previously constructed concrete entryway/landing for one of the model homes at the subject site. The site plan was not granted approval because the covered landing was constructed within the 60' front setback required in the Agricultural District. On July 9, 2010, Clayton Homes submitted a variance application to the Board of Adjustments requesting that the landing be permitted within the 60' setback. Because a finding of a hardship was not identified, City staff informed the applicant that the Engineering & Planning Department would not recommend approval of the request. After discussions with the applicant regarding the zoning of the property and the existing encroachments on the site the applicant withdrew the variance request and removed the illegally constructed landing.

On January 21, 2011, the Engineering & Planning Department received a rezoning and conditional use permit (CUP) application for the subject site. The applicant is requesting to rezone the property from the Agricultural District to the Commercial District. As a matter of information, the use of the site as a modular and manufactured home sales facility is 'grandfathered' because it was established prior to its annexation into the City, however Clayton Homes desires to make improvements to the property including reconfiguring the site layout, adding parking and drive aisles, installing landscaping, and relocating all structures outside of the building setbacks which requires the granting of a conditional use permit. The "Manufactured Home Display or Sales (New or Used)" land use is defined in the Zoning Ordinance as "The offering for sale, storage, or display of new or previously owned (i.e., used) manufactured housing units (e.g., mobile homes/trailers, HUD-Code homes, industrialized homes) on a parcel of land, but excluding the use of such facilities as dwellings either on a temporary or permanent basis."

As a matter of information, the property is currently in the process of being platted. The "Tomball R 135" preliminary plat was approved on October 12, 2009. However, the final plat was denied by the Planning & Zoning Commission on June 14, 2010 because the lot did not meet the minimum lot depth requirements of the Agricultural District. The property owner will restart the platting process if the property is rezoned to the Commercial District and issued a CUP. If the property were rezoned to the Commercial District and replatted into one overall lot, the lot would meet the minimum area requirements of the Commercial District.

ANALYSIS

According to the Tomball Zoning Ordinance, "The C, Commercial, district is intended to provide a location for commercial and service related establishments, such as wholesale product sales,

welding/contractors shops, automotive repair services, upholstery shops, and other similar commercial uses. Some light manufacturing may also be allowed with certain conditions. The uses envisioned for the district will typically utilize smaller sites and have operation characteristics which are generally not compatible with residential uses and some nonresidential uses. Convenient access to thoroughfares and collector streets is also a primary consideration."

The applicant is requesting the rezoning to bring the property's zoning classification in line with the manufactured home sales use already established on the site and to facilitate future improvements to the site including providing internal drive aisles and parking, updating the existing sales office, installing landscaping, reconfiguring the site layout, and improving the overall aesthetics of the site (Exhibit "F"). The proposed improvements are discussed in further detail in the conditional use permit staff report (P11-303).

The uses in the general vicinity of the site are primarily commercial and retail in nature (Exhibit "C"). The proposed use would not be incompatible with the existing commercial and retail uses in the area and would likely continue to complement the other manufactured home sales establishments in the area.

The proposed rezoning to the Commercial District is consistent with the "Commercial" Comprehensive Plan land use designation shown on the Future Land Use Plan Map. The Comprehensive Plan's land use designations are intended to provide direction in determining current and future growth patterns and development intensities. The Comprehensive Plan states that the Commercial land use designation "is where retail sales and service activities should occur. These uses include but are not limited to shopping centers, convenience stores, auto dealers, department stores, grocery and drug stores, entertainment facilities, food and beverage purveyors, salons, and small repair shops."

Because the requested rezoning is consistent with the Comprehensive Plan's Future Land Use Plan Map, is consistent with the zoning classifications other properties in the area, and will help facilitate improvements to the size with, staff is supportive of the rezoning request.

ZONING CONSIDERATIONS

In making its recommendation regarding a proposed zoning change, the Planning and Zoning Commission shall consider the following factors:

A. Whether the uses permitted by the proposed change will be appropriate in the immediate area concerned, and their relationship to the general area and to the City as a whole.

The uses in the general vicinity of the site are primarily commercial and retail in nature (Exhibit "C"). As such, the rezoning and permitted land uses in the Commercial District would be in keeping with the existing and intended land uses in the vicinity. Any future development/redevelopment of this site will require compliance with the City's land use and development regulations.

B. Whether the proposed change is in accord with any existing or proposed plans for providing public schools, streets, water supply, sanitary sewers, and other utilities to the area.

The site is currently developed with a manufactured home sales company. As such, the proposed rezoning is not anticipated to negatively impact public schools, streets, water supply, sanitary sewers, or other utilities to the area.

C. The amount of vacant land currently classified for similar development in the vicinity and elsewhere in the City, and any special circumstances which may make a substantial part of such vacant land unavailable for development.

There are a limited number of undeveloped properties zoned Commercial District in the immediate vicinity with most being south of the subject site along S.H. 249. However, there are a number of vacant Commercial District lots available along F.M. 2920, west of S.H. 249.

D. The recent rate at which land is being developed in the same zoning classification as the request, particularly in the vicinity of the proposed change.

There has been steady development in the Commercial District city-wide and within the vicinity in the last two years.

E. How other areas designated for similar development will be, or are likely to be, affected if the proposed amendment is approved.

If the proposed zoning change were approved, there should be few if any affects on other areas designated for similar developments.

F. Any other factors that will substantially affect the public health, safety, morals, or general welfare.

The proposed zone change is not anticipated to adversely affect health, safety, morals, or general welfare.

G. Whether the request is consistent with the Comprehensive Plan.

According to the Comprehensive Plan, rezonings are "to conform to the intended future land use pattern shown on the Future Land Use Plan and should occur only when economic, physical, social, and other factors will allow the proposed land use to be developed:

- Within the capacities of existing or funded infrastructure and public facilities and services;
- In a compatible manner with surrounding land uses;
- To standards specified for and appropriate to the proposed land use; and,
- In a way that furthers or helps achieve the goals of the Plan."

The proposed rezoning to the Commercial District is consistent with the "Commercial" Comprehensive Plan land use designation. The Comprehensive Plan states that the Commercial land use designation "is where retail sales and service activities should occur. These uses include but are not limited to shopping centers, convenience stores,

auto dealers, department stores, grocery and drug stores, entertainment facilities, food and beverage purveyors, salons, and small repair shops."

PUBLIC COMMENT

Property owners within 200 feet of the project site were mailed notification of this proposal on March 3, 2011 and, as of the writing of this report, no public comment forms were received.

RECOMMENDATION

That the Planning and Zoning Commission recommend:

1. APPROVAL of Zoning Case P11-302 based on the following:

    a. The proposed zoning of Commercial District is compatible with the land uses in the vicinity.

    b. The proposed zoning of Commercial District is compatible with the Tomball Comprehensive Plan.

    c. The proposed zoning of Commercial District will not negatively impact public schools, streets, water supply, sanitary sewers, or other utilities to the area.

    d. There is sufficient utility capacity to service this site.

2. APPROVAL of the staff report as the Planning and Zoning Commission's final recommendation to the City Council.

EXHIBITS

A. Location/Zoning Map
B. Comprehensive Plan Future Land Use Map
C. Aerial Photo
D. Rezoning Application
E. Conditional Use Permit Application
F. Rezoning Request Letter
G. Concept Plan
H. Property Survey
I. Ordinance 2008-32 Annexation Map
J. Site Photos

Exhibit "A"
Location/Zoning Map

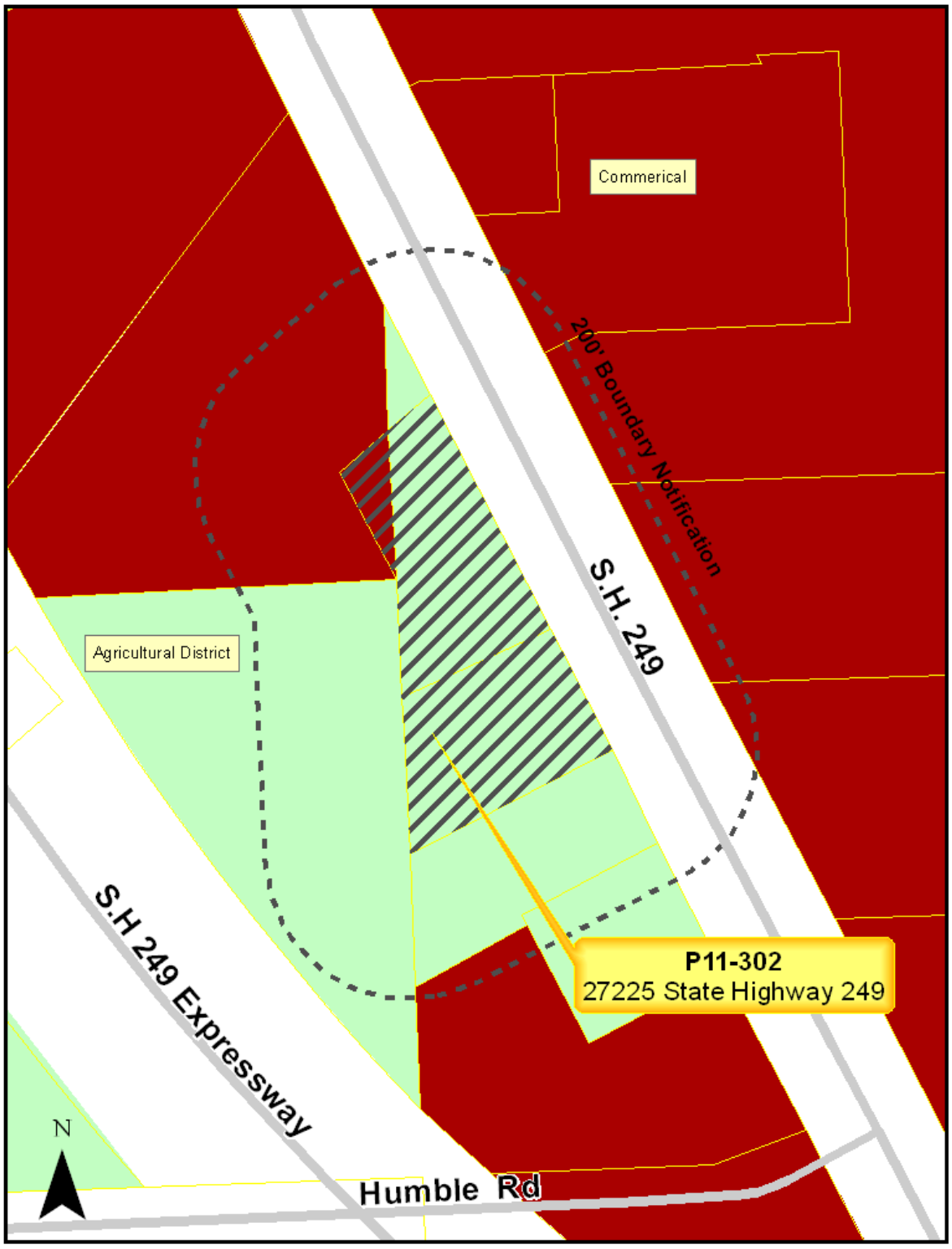


Exhibit "B"
Comprehensive Plan Future Land Use Map

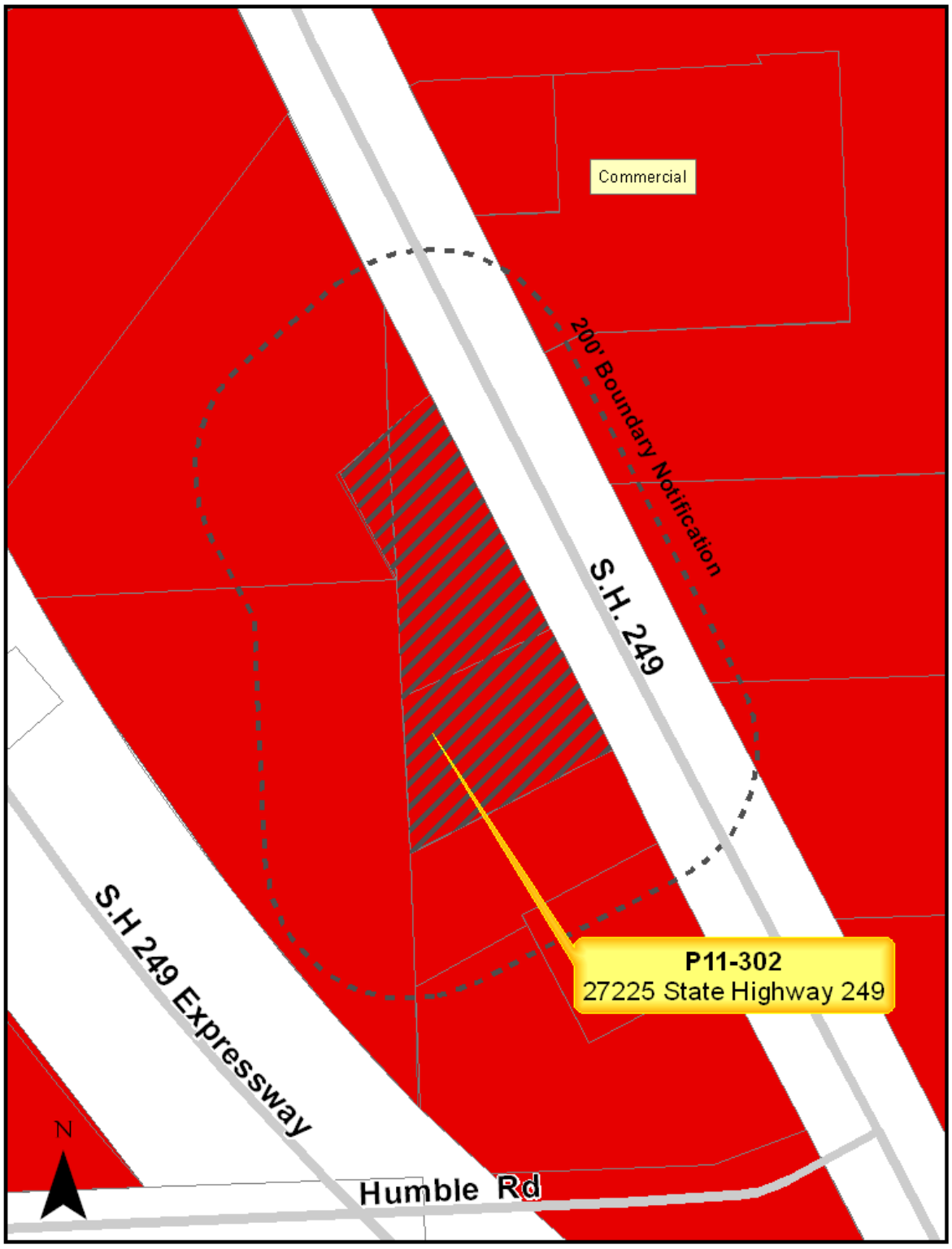


Exhibit "C"
Aerial Photo

Exhibit "D"
Rezoning Application

Revised 1/20/09

APPLICATION FOR REZONING

Engineering & Planning Department

RECEIVED
JAN 21 2010
BY

APPLICATION SUBMITTAL: Applications will be ***conditionally*** accepted on the presumption that the information, materials and signatures are complete and accurate. If the application is incomplete or inaccurate, your project may be delayed until corrections or additions are received.

Applicant
Name: DPK Engineering David Kelly Title: President
Mailing Address: 32719 Windsor Terrace City: Fulshear State: TX
Zip: 77441
Phone: (281) 346-2616 Fax: (281) 346-2616 Email: david.kelly@dpkengineering.com

Owner By: HUGH T. STATUM, III
Name: CMH HOMES, INC Title: VICE PRESIDENT
Mailing Address: 5000 CLAYTON ROAD City: MARYVILLE State: TN
Zip: 37804
Phone: (865) 380-3000 Fax: (865) 380-3792 Email: TAB.STATUM@CLAYTONHOMES.COM

Engineer/Surveyor (if applicable)
Name: David P Kelly II Title: President DPK Eng
Mailing Address: 32719 Windsor Terrace City: Fulshear State: TX
Zip: 77441
Phone: (281) 346-2616 Fax: (281) 346-2616 Email: david.kelly@dpkengineering.com

Description of Proposed Project: Remodel Existing Site

Physical Location of Property: 27225 State Highway 249 between Alice
[General Location – approximate distance to nearest existing street corner] & Humble Rd

Legal Description of Property: CN. Pillot A632 Tract 1 (1.0A) Tract 2 (1.57AC)
[Survey/Abstract No. and Tracts; or platted Subdivision Name with Lots/Block]

Current Zoning District: ~~Commercial~~ AG

Current Use of Property: Clayton Homes (Mobile Home Sales)

Proposed Zoning District: Commercial

Proposed Use of Property: Manufactured Home Sales

City of Tomball, Texas 501 James Street, Tomball, Texas 77375 Phone: 281-290-1405 www.ci.tomball.tx.us

HCAD Identification Number: ~~0440~~ 0440580000215 Acreage: 2.5721

Please note: A courtesy notification sign will be placed on the subject property during the public hearing process and will be removed when the case has been processed.

This is to certify that the information on this form is COMPLETE, TRUE, and CORRECT and the under signed is authorized to make this application. I understand that submitting this application does not constitute approval, and incomplete applications will result in delays and possible denial.

X _____ 1/20/11
Signature of Applicant **Date**

X _____ 1-11-11
Signature of Owner **Date**

Exhibit "E"
Conditional Use Permit Application

Revised 1/20/09

RECEIVED
JAN 21 2010
By

APPLICATION FOR CONDITIONAL USE PERMIT

Engineering & Planning Department

A conditional use is a land use which, because of its unique nature, is compatible with the permitted land uses in a given zoning district only upon a determination that the external effects of the use in relation to the existing and planned uses of adjoining property and the neighborhood can be mitigated through imposition of certain standards and conditions. This Section sets forth the standards used to evaluate proposed conditional uses and the procedures for approving conditional use permit (CUP) applications.

No conditional use shall be established and no building permit shall be issued for any use designated as a conditional use within any zoning district until a conditional use permit (CUP) is approved and issued in accordance with the provisions of this Section and Section 10 of The Zoning Ordinance.

APPLICATION SUBMITTAL: Applications will be ***conditionally*** accepted on the presumption that the information, materials and signatures are complete and accurate. If the application is incomplete or inaccurate, your project may be delayed until corrections or additions are received.

Applicant
Name: DPK Engineering David Kelly Title: President
Mailing Address: 32719 Windsor Terrace City: Fulshear State: TX
Zip: 77441
Phone: (281) 346-2616 Fax: (281) 346-2616 Email: david.kelly@dpkengineering.com

Owner BY HUGH T. STATUM, III
Name: CMH HOMES, INC. Title: VICE PRESIDENT
Mailing Address: 5000 CLAYTON ROAD City: MARYVILLE State: TN
Zip: 37804
Phone: (865) 380-3000 Fax: (865) 380-3792 Email: TAB.STATUM@CLAYTONHOMES.COM

Engineer/Surveyor (if applicable)
Name: David Kelly DPK Engineering Title: President
Mailing Address: 32719 Windsor Terrace City: Fulshear State: TX
Zip: 77441
Phone: (281) 346-2616 Fax: (281) 346-2616 Email: david.kelly@dpkengineering.com

City of Tomball, Texas 501 James Street, Tomball, Texas 77375 Phone: 281-290-1405 www.ci.tomball.tx.us

Description of Proposed Project: Remodel Existing Site

Physical Location of Property: 27225 State Highway 249 between Alice + Humbly
[General Location – approximate distance to nearest existing street corner]

Legal Description of Property: CN Pillot A 632 Tract 1(1.004ac) Tract 2(1.57Ac)
[Survey/Abstract No. and Tracts; or platted Subdivision Name with Lots/Block]

HCAD Identification Number: 0440580000001 0440580000215 Acreage: 2.5721

Current Use of Property: Clayton Homes Manufactured Home Sales

Proposed Use of Property: same

Please note: A courtesy notification sign will be placed on the subject property during the public hearing process and will be removed when the case has been processed.

This is to certify that the information on this form is COMPLETE, TRUE, and CORRECT and the under signed is authorized to make this application. I understand that submitting this application does not constitute approval, and incomplete applications will result in delays and possible denial.

X _____ 1/20/11

Signature of Applicant **Date**

X _____ 1-11-11

Signature of Owner **Date**

Exhibit "F"
Rezoning Request Letter

DPK Engineering LLC

Land Development – Site Development - Municipal
32719 Windsor Terrace
Fulshear, Texas 77441
Tel/Fax: 281-346-2616

January 20, 2011

Kelly Violette
City Planner/Community Development Coordinator
City of Tomball
501 James Street | Tomball, TX 77375
Phone (281) 290-1491 | Fax - (281) 351-4735
kviolette@ci.tomball.tx.us

Reference: REZONING CLAYTON HOMES PROPERTY

Dear Mrs. Violette:

I have been requested by CMH Homes, Inc., the owner of the Clayton Homes at 27225 State Highway 249 in Tomball Texas, to request the rezoning of their existing property. The property is in the process of being replatted into a single lot and improvements are planned for the existing infrastructure. CMH Homes, Inc is proposing to update the existing sales office and reconfigure the layout which will be more conducive to sales and a more aesthetic setting. CMH Homes requests that the zoning is changed from AG to Commercial and that a conditional use permit be granted for this facility.

If you have any questions or concerns please feel free to contact me.

David P. Kelly II, P.E.
DPK Engineering LLC
32719 Windsor Terrace
Fulshear, Texas 77441
phone/fax: 281-346-2616
mobile: 281-300-1869
david.kelly@dpkengineering.com

Exhibit "G"
Concept Plan

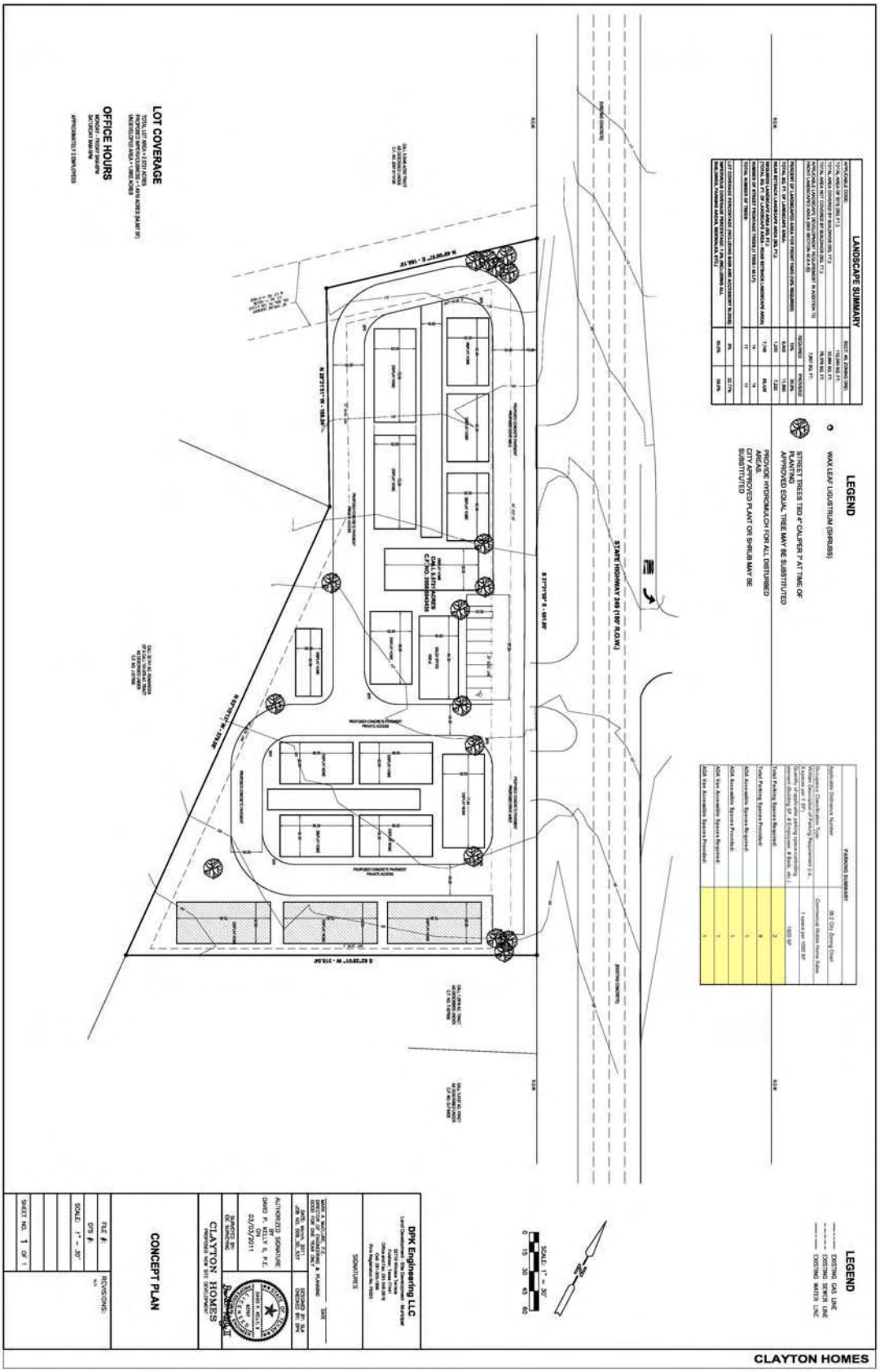


Exhibit "H"
Property Survey

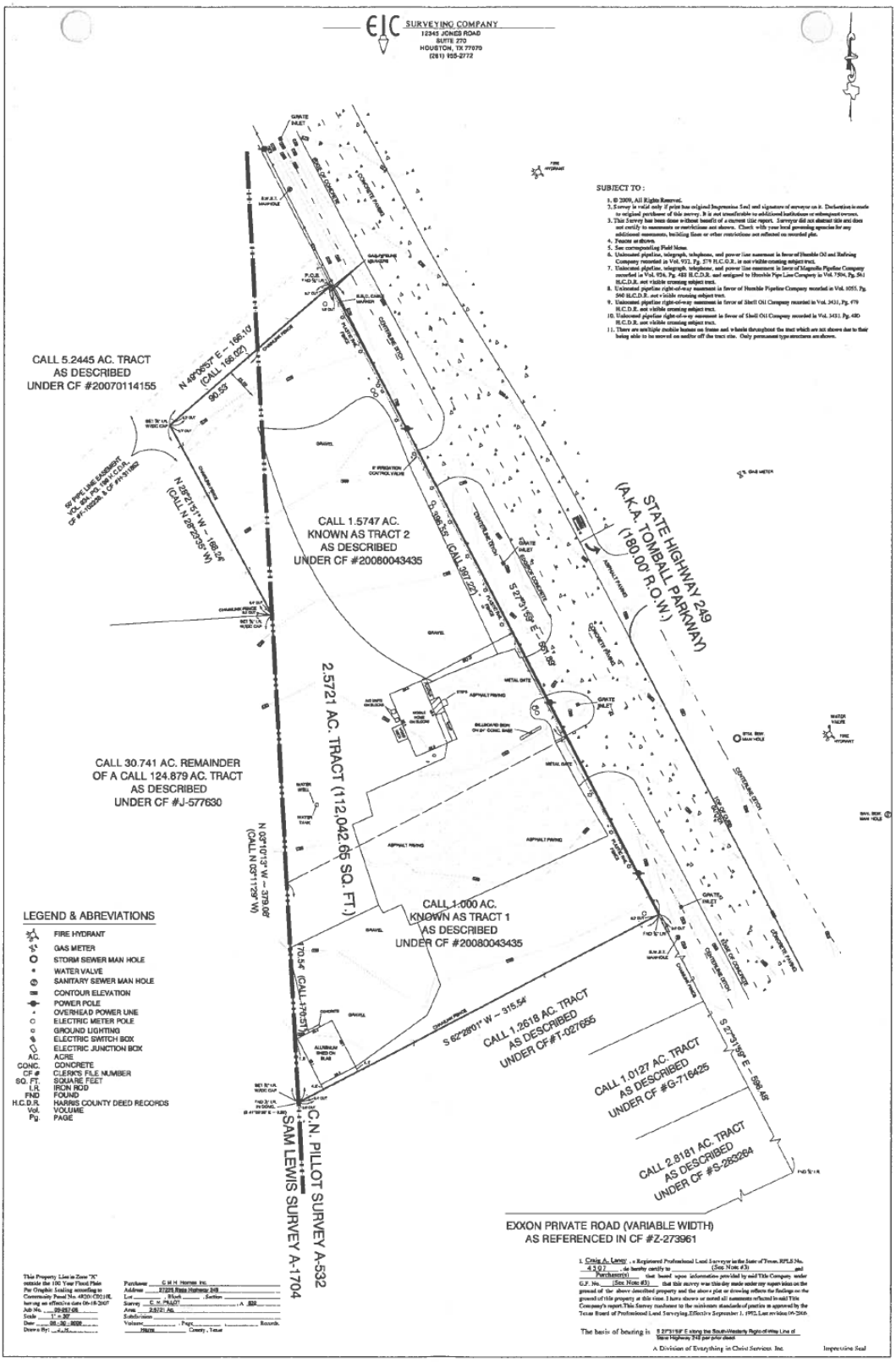


Exhibit "I"
Ordinance 2008-32 Annexation Map

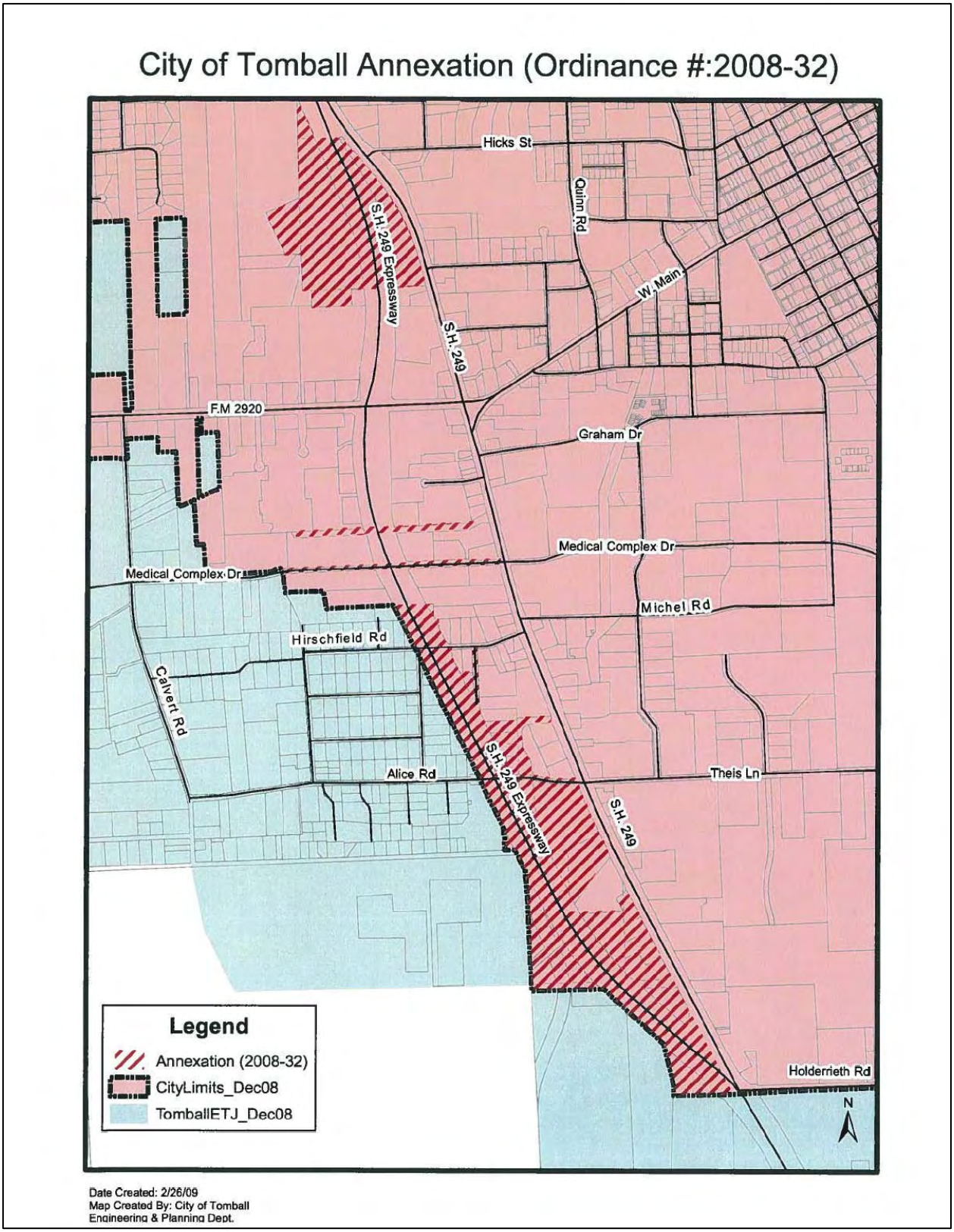


Exhibit "J"
Site Photos

Figure 1: Northerly view of subject site.

Figure 2: Excel Storage to the north of the subject site.

Figure 3: Tractor Supply to the east of subject site.

Figure 4: Tomball Rental Center to the south of subject site.

ORDINANCE NO. 2011-02

AN ORDINANCE OF THE CITY OF TOMBALL, TEXAS, AMENDING ITS COMPREHENSIVE ZONING ORDINANCE BY CHANGING THE ZONING DISTRICT CLASSIFICATION OF APPROXIMATELY 2.57 ACRES OF LAND, LEGALLY DESCRIBED AS TRACTS 2V AND 2W OUT OF THE C.N. PILLOT SURVEY, ABSTRACT 632 AND TRACT 8A OUT OF THE SAM LEWIS SURVEY, ABSTRACT 1704, WITHIN THE CITY OF TOMBALL, HARRIS COUNTY, TEXAS, FROM THE AG-AGRICULTURAL DISTRICT TO THE C-COMMERCIAL DISTRICT; SAID PROPERTY BEING GENERALLY LOCATED ON THE WESTERLY SIDE OF STATE HIGHWAY 249, SOUTHERLY OF ALICE ROAD; PROVIDING FOR THE AMENDMENT OF THE OFFICIAL ZONING MAP OF THE CITY; PROVIDING FOR SEVERABILITY; PROVIDING FOR A PENALTY OF AN AMOUNT NOT TO EXCEED $2,000 FOR EACH DAY OF VIOLATION OF ANY PROVISION HEREOF, MAKING FINDINGS OF FACT; AND PROVIDING FOR OTHER RELATED MATTERS

* * * * * * * * * *

Whereas, the owner(s) of 2.57 acres of land, legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, generally located on the westerly side of State Highway 249, southerly of Alice Road, in the City of Tomball, Harris County, Texas, (the "Property"), have requested that the Property be rezoned; and

Whereas, at least eight (8) days after publication in the official newspaper of the City of the time and place of a public hearing and at least ten (10) days written notice of that hearing to the owners of land within two hundred feet of the Property in the manner required by law, the Planning & Zoning Commission held a public hearing on the proposal to change the zoning for the Property from AG-Agricultural District to the C-Commercial District; and

Whereas, the public hearing was held at least forty calendar days after the City's receipt of the request for rezoning; and

Whereas, the Planning and Zoning Commission recommended in its final report that City Council grant such proposed change in the zoning district classification of the Property; and

Whereas, at least fifteen (15) days after publication in the official newspaper of the City of the time and place of a public hearing on the proposal to change the zoning district classification for the Property from AG-Agricultural District to the C-Commercial District, the City Council held the public hearing on the proposal to change the zoning for the Property and the City Council considered the final report of the Planning & Zoning Commission regarding the change of zoning district classification, and,

DRAFT

Whereas, the City Council deems it appropriate to grant such proposed change in the zoning district classification of the Property;

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF TOMBALL, TEXAS, THAT:

Section 1. The City Council finds that the facts and matters set forth in the preamble of this Ordinance are true and correct.

Section 2. The zoning classification of 2.57 acres of land, legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, within the City of Tomball, Harris County, Texas, (the "Property"), is hereby changed from the AG-Agricultural District to the C-Commercial District subject to the regulations, restrictions, and conditions hereafter set forth.

Section 3. The Official Zoning Map of the City of Tomball, Texas-Ordinance 2008-01, ("Zoning District Map"), shall be revised and amended to show the designation of 2.57 acres of land, legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, generally located on the westerly side of State Highway 249, southerly of Alice Road, as C-Commercial District, with the appropriate reference thereon to the number and effective date of this Ordinance and a brief description of the nature of the change.

Section 4. This Ordinance shall in no manner amend, change, supplement, or revise any provision of any ordinance of the City of Tomball, save and except the change in zoning classification for 2.57 acres of land, legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, generally located on the westerly side of State Highway 249, southerly of Alice Road, to C-Commercial District as described above.

Section 5. In the event any section, paragraph, subdivision, clause, phrase, provision, sentence, or part of this Ordinance or the application of the same to any person or circumstance shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Ordinance as a whole or any part or provision hereof other any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of Tomball, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, or whether there be one or more parts.

Section 6. Any person who shall violate any provision of this Ordinance shall be deemed guilty of a misdemeanor and upon conviction, shall be fined in an amount not to exceed $2,000. Each day of violation shall constitute a separate offense.

Section 7. City Council finds and determines that the meeting at which this ordinance is passed was open to the public as required and that public notice of the time, place, and purpose of said meeting was given as required by the Texas Open Meetings Act, Tex.Gov't. Code ch. 551.

DRAFT

FIRST READING:

READ, PASSED AND APPROVED AS SET OUT BELOW AT THE MEETING OF THE CITY COUNCIL OF THE CITY OF TOMBALL HELD ON THE 21ST DAY OF MARCH 2011.

COUNCILMAN QUINN	_____
COUNCILMAN STOLL	_____
COUNCILMAN BROWN	_____
COUNCILMAN TOWNSEND	_____
COUNCILMAN DODSON	_____

SECOND READING:

READ, PASSED AND APPROVED AS SET OUT BELOW AT THE MEETING OF THE CITY COUNCIL OF THE CITY OF TOMBALL HELD ON THE 4TH DAY OF APRIL 2011.

COUNCILMAN QUINN	_____
COUNCILMAN STOLL	_____
COUNCILMAN BROWN	_____
COUNCILMAN TOWNSEND	_____
COUNCILMAN DODSON	_____

_____
Gretchen Fagan, Mayor

ATTEST:

_____
Doris Speer, City Secretary

DRAFT

NOTICE OF PUBLIC HEARINGS
CITY OF TOMBALL
PLANNING & ZONING COMMISSION
MARCH 14, 2011
&
CITY COUNCIL
MARCH 21, 2011

Notice is Hereby Given that Public Hearings will be held by the Planning & Zoning Commission of the City of Tomball on **Monday, March 14, 2011, at 6:00 P.M.,** and by the City Council of the City of Tomball on **Monday, March 21, 2011, at 7:00 P.M.** at Regular Meetings, in the City Council Chambers of the City of Tomball at City Hall, 401 Market Street, Tomball, Texas. On such dates, the Planning & Zoning Commission and City Council will consider the following:

ZONING CASE P11-302: Request by David Kelly, on behalf of CMH Homes, Inc. (Clayton Homes), to amend the City's Comprehensive Zoning Ordinance to rezone approximately 2.57 acres of land, legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, within the City of Tomball, Harris County, Texas, generally located on the westerly side of State Highway 249, southerly of Alice Road, from the AG-Agricultural District to the C-Commercial District.

ZONING CASE P11-303: Request by David Kelly, on behalf of CMH Homes, Inc. (Clayton Homes), for a Conditional Use Permit to operate a "Manufactured Home Display or Sales (New or Used)" facility. The property is an approximately 2.57 acre site, legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, generally located on the westerly side of State Highway 249, southerly of Alice Road at 27225 State Highway 249, Tomball, Texas. The site is located in the AG-Agricultural and C-Commercial Districts. (This case will be heard in conjunction with Zoning Case P11-302).

Persons interested in these cases will be given an opportunity to be heard. Action by the Planning and Zoning Commission serves as a recommendation to the City Council and is not a final action on the request. Should the Planning & Zoning Commission vote to table a decision/recommendation on one or more of the above cases, the date and time of a future meeting will be specified and the City Council will not review the subject case until such a decision/recommendation is forwarded to the City Council by the Planning

and Zoning Commission. The application is available for public inspection Monday through Friday, holidays excepted, between the hours of 8:00 a.m. and 5:00 p.m. in the Engineering & Planning Department office, located at 501 James Street, Tomball, TX 77375. ***Contact City Planner*** Kelly Violette, (281) 290-1491, kviolette@ci.tomball.tx.us

C E R T I F I C A T I O N

I hereby certify that the above notice of meeting was posted on the bulletin board of City Hall; City of Tomball, Texas, a place readily accessible to the general public at all times, on the 10th day of March 2011 by 5:00 p.m., and remained posted for at least 72 continuous hours preceding the scheduled time of said meeting.

Brandy Pate
Brandy Pate
Senior Administrative Assistant

This facility is wheelchair accessible and accessible parking spaces are available. Requests for accommodations or interpretive services must be made 48 hours prior to this meeting. Please feel free to contact the City Secretary's office at (281) 290-1002 or FAX (281) 351-6256 for further information. AGENDAS MAY ALSO BE VIEWED ONLINE AT www.ci.tomball.tx.us.

Engineering and Planning Department

Notice of Public Hearing

YOU ARE INVITED TO ATTEND Public Hearings before the **PLANNING AND ZONING COMMISSION** and **CITY COUNCIL** of the City of Tomball regarding the following item:

CASE NUMBER: P11-302

APPLICANT: David Kelly, on behalf of CMH Homes, Inc. (Clayton Homes)

LOCATION: Westerly side of State Highway 249, southerly of Alice Road

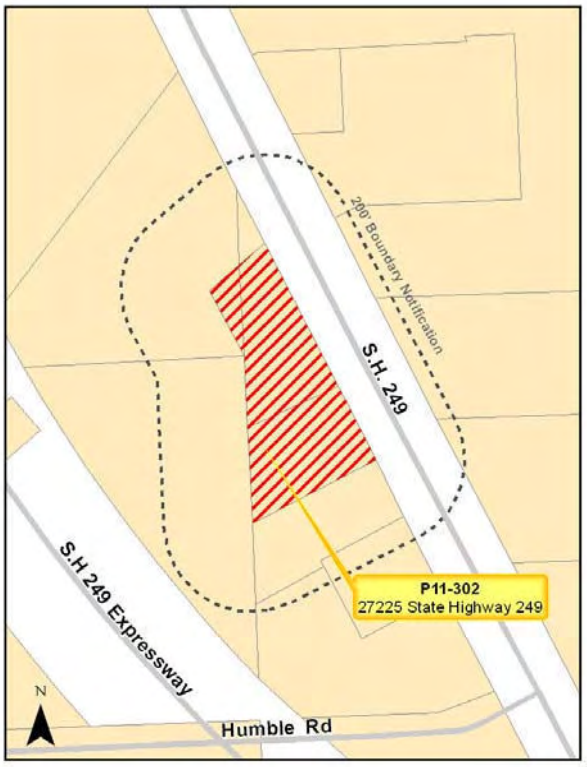
PROPOSAL: Request to amend the City's Comprehensive Zoning Ordinance to rezone approximately 2.57 acres of land, legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, within the City of Tomball, Harris County, Texas, from the AG-Agricultural District to the C-Commercial District.

* * *

CONTACT PLANNER: Kelly Violette
PHONE: (281) 290-1491
E-MAIL: kviolette@ci.tomball.tx.us

Interested parties may contact the City Planner between 8:00 a.m. and 5:00 p.m. Monday through Friday for further information. The rezoning application is available for public inspection Monday through Friday, holidays excepted, between the hours of 8:00 a.m. and 5:00 p.m. in the Engineering and Planning Department office, located at 501 James Street, Tomball, TX 77375. The staff report will be available no later than 4:00 p.m. on the Friday preceding the meeting.

This notice is being mailed to all owners of real property within 200 feet of the request as such ownership appears on the last approved Harris County Appraisal District tax roll. Interested parties may appear and speak on the project or the staff recommendation at the meeting. Written comments may also be submitted for consideration.



Planning and Zoning Commission
Public Hearing:
Monday, March 14, 2011, 6:00 PM

City Council Public Hearing:
***Monday, March 21, 2011, 7:00 PM**

The Public Hearings will be held in the City Council Chambers, City Hall 401 Market Street, Tomball, Texas

*Should the Planning & Zoning Commission vote to table the recommendation on the case, the date and time of a future meeting will be specified and the City Council will not review the subject case until such a recommendation is forwarded to the City Council by the Planning and Zoning Commission.

Regular City Council
Agenda Item
Data Sheet

Meeting Date: March 21, 2011

Topic:

Consideration and possible action regarding **ZONING CASE P11-303:** Request by David Kelly, on behalf of CMH Homes, Inc. (Clayton Homes), for a Conditional Use Permit to operate a "Manufactured Home Display or Sales (New or Used)" facility. The property is an approximately 2.57-acre site, legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, generally located on the westerly side of State Highway 249, southerly of Alice Road at 27225 State Highway 249, Tomball, Texas.

- Conduct a Public Hearing on **ZONING CASE P11-303**
- Adopt on First Reading, Ordinance No. 2011-03, an Ordinance of the City of Tomball, Texas, Amending its Comprehensive Zoning Ordinance by Granting a Conditional Use Permit to CMH Homes, Inc., to operate a "Manufactured Home Display or Sales (New or Used)" Facility; Said Property Being Located within the City in Zoning District C-Commercial and Being Legally Described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, Generally Located on the westerly side of State Highway 249, Southerly of Alice Road in Tomball, Texas; Providing Requirements and Conditions for this Conditional Use Permit; Containing Findings and Other Provisions Relating to the Subject; Providing a Penalty in an amount not to exceed Two Thousand Dollars for Violations Hereof; and Providing for Severability.

Background:

On January 21, 2011, the Engineering & Planning Department received a conditional use permit (CUP) application for a "Manufactured Home Display or Sales (New or Used)" facility for Clayton Homes on the subject site. The existing use of the site as a modular and manufactured home sales facility is 'grandfathered' because it was established prior to its annexation into the City, however Clayton Homes desires to make improvements to the property including reconfiguring the site layout, adding parking and drive aisles, installing landscaping, and relocating all structures outside of the building setbacks which requires the granting of a conditional use permit. The "Manufactured Home Display or Sales (New or Used)" land use is defined in the Zoning Ordinance as "The offering for sale, storage, or display of new or previously owned (i.e., used) manufactured housing units (e.g., mobile homes/trailers, HUD-Code homes, industrialized homes) on a parcel of land, but excluding the use of such facilities as dwellings either on a temporary or permanent basis."

After reviewing the request for a conditional use permit staff prepared a report to the Planning and Zoning Commission recommending approval subject to the conditions listed in the attached draft ordinance (Ordinance No. 2011-03).

On March 14, 2011, the Planning and Zoning Commission, after conducting a public hearing on this request, voted 4-0 to approve Zoning Case P11-303, with conditions. This case is now being forwarded to City Council for consideration and possible action.

Origination:

David Kelly, on behalf of CMH Homes, Inc. (Clayton Homes)

Recommendation:

In its formal recommendation to City Council, the Planning and Zoning Commission voted 4-0 to approve Zoning Case P11-303, as recommended by staff, subject to the following recommended conditions of approval: A. The use of the "Manufactured Home Display or Sales (New or Used)" use shall not be enlarged, extended or relocated, nor may the number of manufactured homes or sales office be increased from what is shown on the approved Concept Plan without the approval of a revised concept plan or new CUP (Exhibit "A"). B. The use of the site will be limited to "Manufactured Home Display or Sales (New or Used)." C. All proposed parking areas, loading areas, and drive aisles must adhere to the requirements of the Zoning Ordinance. D. Off-street parking must be provided at a rate of 1 space per 1,000 square feet of gross sales office area. E. All structures must adhere to the setback requirements of the Zoning Ordinance. F. The subject site must be landscaped in accordance with the Zoning Ordinance. G. All manufactured homes and sales offices adjacent to S.H. 249 must be skirted between the bottom of the manufactured home or office and the ground with a material harmonious with the appearance of the manufactured home or sales office. The skirting must be provided on all sides of structures that are adjacent and visible from SH 249 right-of-way. H. The final plat consolidating Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704 into one overall tract must be filed with Harris County before building permits shall be issued.

Funding: No

Funds will be transferred from Account: to Account:

Party(ies) responsible for placing this item on agenda:

Engineering and Planning Department

ACTION TAKEN

APPROVAL	READINGS PASSED	OTHER
☐ YES ☐ NO	☐ 1ST ☐ 2ND	

ATTACHMENTS:

P11-303 Staff Report
Draft Ordinance No. 2011-03
Notice of Public Hearing
Adjacent Property Owner Notification

CUP Staff Report

Planning and Zoning Commission Hearing Date: March 14, 2011

Rezoning Case:	P11-303
Property Owner(s):	CMH Homes, Inc.
Applicant(s):	David Kelly
Legal Description:	Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, within the City of Tomball, Harris County, Texas
Location:	27225 State Highway 249 (Generally located on the westerly side of State Highway 249, southerly of Alice Road)
Area:	2.57 acres
Present Zoning and Use:	AG-Agricultural District / Modular and Manufactured Home Display and Sales
Comp Plan Designation:	Commercial
Proposed Use:	"Manufactured Home Display or Sales (New or Used)"
Request:	Conditional Use Permit to allow a "Manufactured Home Display or Sales (New or Used)" land use.

Adjacent Zoning & Land Uses:

North:	AG-Agricultural and C-Commercial Districts / Mini-warehouse
South:	AG-Agricultural and C-Commercial Districts / Tool rental
East:	C-Commercial District / SH 249 ROW, shopping center, Tractor Supply Co., and Palm Harbor Homes
West:	AG-Agricultural and C-Commercial Districts / Mini-warehouse and undeveloped

BACKGROUND / PROJECT DESCRIPTION

The subject site is legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, within the City of Tomball, Harris County, Texas totaling approximately 2.57 acres. The site's physical address is 27225 State Highway 249 and is generally located on the westerly side of State Highway 249, southerly of Alice Road (Exhibit "A"). The property is currently used by Clayton Homes as a modular and manufactured home sales facility consisting of a number of show homes for sale as well as a sales office (Exhibit "C").

The applicant is requesting a conditional use permit to utilize the site for a "Manufactured Home Display or Sales" facility. As a matter of information, the existing use of the site as a modular and manufactured home sales facility is 'grandfathered' because it was established prior to its annexation into the City, however Clayton Homes desires to make improvements to the property including reconfiguring the site layout, adding parking and drive aisles, installing landscaping, and relocating all structures outside of the building setbacks which requires the granting of a conditional use permit.

According to the Zoning Ordinance, "a conditional use is a land use which, because of its unique nature, is compatible with the permitted land uses in a given zoning district only upon a determination that the external effects of the use in relation to the existing and planned uses of adjoining property and the neighborhood can be mitigated through imposition of certain standards and conditions." Additionally, the Ordinance requires that all CUP applications include a Concept Plan to ensure that the proposed project is in compliance with all applicable City ordinances.

The proposed concept plan indicates that the site will contain a total of 16 display homes and one sales office. Additionally, nine parking stalls are shown, including one ADA accessible space. However that number may be reduced to eight parking stalls because of the required eight foot wide ADA loading zone. The Concept Plan shows new 24 foot wide concrete drive aisles throughout the site and the addition of landscaping. It should be noted that Section 40.2.B of the Zoning Ordinance specifies that any use requiring a CUP must comply with Section 40's landscape standards unless special landscaping standards are otherwise provided for in the ordinance establishing the CUP. In no case shall the standards provided for in the CUP ordinance be less than the standards required by Section 40.

The concept plan also shows that the office hours for the facility will be Monday – Friday from 9 a.m. to 6 p.m. and Saturday from 9 a.m. to 5 p.m., with approximately two employees on site.

ANALYSIS

According to the Zoning Ordinance, "When considering applications for a conditional use permit, the City shall, on the basis of the Concept Plan and other information submitted, evaluate the impact of the conditional use on, and the compatibility of the use with, surrounding properties and neighborhoods to ensure the appropriateness of the use at a particular location."

Factors for Consideration:

1. **The proposed use at the specified location is consistent with the goals, objectives and policies contained in the adopted Comprehensive Plan;**

   The Commercial Land Use designation in the Comprehensive Plan is intended for retail sales and service activities including, shopping centers, convenience stores, auto dealers, department stores, grocery and drug stores, entertainment facilities, food and beverage purveyors, salons, small repair shops, and professional offices. The use of the site as a Manufactured Homes Display and Sales facility is consistent with the Commercial designation outlined in the Comprehensive Plan and the proposed site improvements will enhance the aesthetics of the existing development.

2. **The proposed use is consistent with the general purpose and intent of the applicable zoning district regulations;**

   The applicant has submitted a concurrent request to rezone the property form the Agricultural Zoning District to the C-Commercial District. The general purpose and intent of the C-Commercial Zoning District is to provide a location for commercial and service related establishments, such as wholesale product sales, welding/contractor's shops, automotive repair services, upholstery shops, and other similar commercial uses. Convenient access to thoroughfares and collector streets is also a primary consideration. The use of the site as a Manufactured Homes Display and Sales facility is consistent with the C- Commercial Zoning District description. The proposed site improvements and recommended conditions of approval will assure compatibility of the use with other uses permitted in the surrounding area. Additionally, the site area is suitable for development based upon the area regulations of the C-Commercial District.

3. **The proposed use meets all supplemental standards specifically applicable to the use as set forth in this Ordinance;**

   The submitted concept plan generally meets the development standards applicable to the project. As previously stated, the number of parking stalls may be reduced from 9 to 8 in order to comply with ADA regulations; however the minimum number of stalls required for the use is 1:1,000 sq feet of floor area. The requirement is based upon the floor area of the sales office, which requires 2 parking stalls.

   The side setbacks shown on the concept plan do not meet the minimum 10 feet required for the Commercial District, however it appears that there is sufficient room to meet the minimum side setbacks without substantial alterations to the proposed layout.

   Should the CUP application be approved, the applicant will be required to submit a full set of civil plans to the Engineering & Planning Department for review and approval. The plans must exhibit compliance with all applicable ordinance regulations, including but not limited to paving, detention, curbing, landscaping, fire access, etc.

4. **The proposed use is compatible with and preserves the character and integrity of adjacent development and neighborhoods and, as required by the particular circumstances, includes improvements or modifications either on-site or within the public rights-of-way to mitigate development-related adverse impacts, including but not limited to:**

   a. **Adequate ingress and egress to property and proposed structures thereon with particular reference to vehicular and pedestrian safety and convenience, and access in case of fire;**
   b. **Off-street parking and loading areas;**
   c. **Refuse and service areas;**
   d. **Utilities with reference to location, availability, and compatibility;**
   e. **Screening and buffering, features to minimize visual impacts, and/or setbacks from adjacent uses;**
   f. **Control of signs, if any, and proposed exterior lighting with reference to glare, traffic safety, economic effect, and compatibility and harmony with properties in the district;**

g. Required yards and open space;
h. Height and bulk of structures;
i. Hours of operation;
j. Exterior construction material and building design; and
k. Roadway adjustments, traffic control devices or mechanisms, and access restrictions to control traffic flow or divert traffic as may be needed to reduce or eliminate development-generated traffic on neighborhood streets.

The submitted concept plan generally meets the development standards applicable to the project. The proposed site improvements and recommended conditions of approval will assure compatibility of the use with other uses permitted in the surrounding area.

5. The proposed use is not materially detrimental to the public health, safety, convenience and welfare, or results in material damage or prejudice to other property in the vicinity.

The continued use of the site as a Manufactured Homes Display and Sales facility is not anticipated to be detrimental to the public health, safety, convenience and welfare. The proposed site improvements and recommended conditions of approval will improve the overall aesthetics of an existing site and bring the site into conformance with the provisions of the Zoning Ordinance.

PUBLIC COMMENT

Property owners within 200 feet of the project site were mailed notification of this proposal on March 3, 2011 and, as of the writing of this report, no public comment forms were received.

RECOMMENDATION

That the Planning and Zoning Commission recommend approval of Zoning Case P11-303, with conditions, based on the following:

a. The proposal is consistent with the general purpose and intent of the applicable zoning district regulations and Comprehensive Plan ;

b. The proposal is not materially detrimental to the public health, safety, convenience and welfare, or results in material damage or prejudice to other property in the vicinity.

RECOMMENDED CONDITIONS OF APPROVAL

Section 37.1.A of the Zoning Ordinance allows the City to impose certain conditions on a CUP request in order to mitigate "external effects of the use in relation to the existing and planned uses of adjoining property and the neighborhood." As such, City staff recommends the following conditions of approval:

1. The "Manufactured Home Display or Sales (New or Used)" use shall not be enlarged, extended or relocated, nor may the number of manufactured homes or sales office be

increased from what is shown on the approved Concept Plan without the approval of a revised concept plan or new CUP.

2. The use of the site will be limited to "Manufactured Home Display or Sales (New or Used)."

3. All proposed parking areas, loading areas, and drive aisles must adhere to the requirements of Section 39 of the Zoning Ordinance.

4. Off-street parking must be provided at a rate of 1 space per 1,000 square feet of gross sales office area.

5. All structures must adhere to the setback requirements of the Zoning Ordinance.

6. The subject site must be landscaped in accordance with Section 40 of the Zoning Ordinance.

7. All manufactured homes and the sales office adjacent to S.H. 249 must be skirted between the bottom of the manufactured home or office and the ground with a fireproof material harmonious with the appearance of the manufactured home or sales office. The skirting must be provided on all sides of the structure that are visible from a public right of way.

8. The final plat consolidating Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704 into one overall tract must be filed with Harris County before building permits shall be issued.

EXHIBITS

A. Location/Zoning Map
B. Comprehensive Plan Future Land Use Map
C. Aerial Photo
D. Rezoning Application
E. Conditional Use Permit Application
F. Rezoning Request Letter
G. Concept Plan
H. Property Survey
I. Ordinance 2008-32 Annexation Map
J. Site Photos

Exhibit "A"
Location/Zoning Map

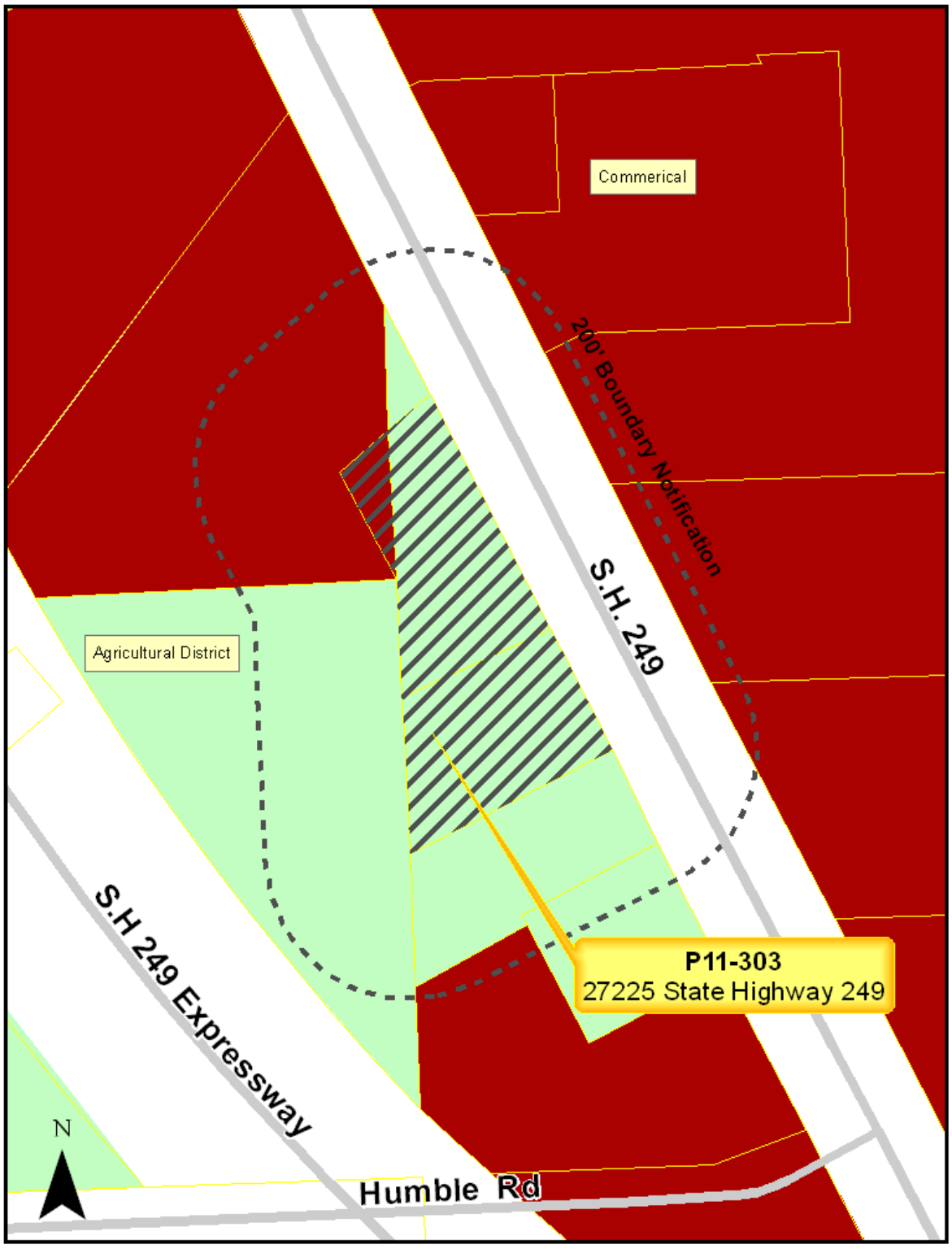


Exhibit "B"
Comprehensive Plan Future Land Use Map

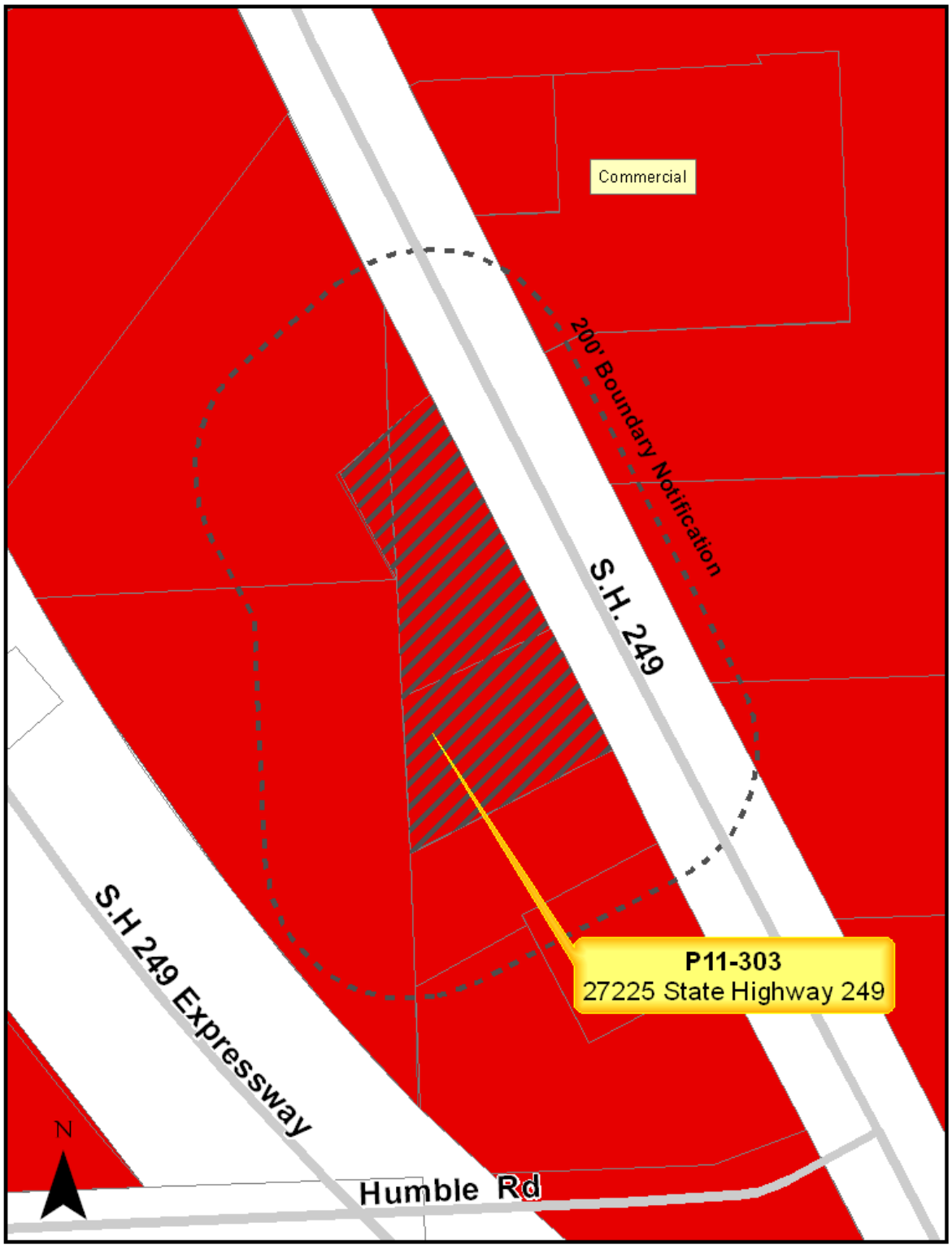


Exhibit "C"
Aerial Photo

Exhibit "D"
Rezoning Application

Revised 1/20/09

APPLICATION FOR REZONING

Engineering & Planning Department

RECEIVED
JAN 21 2010
BY

APPLICATION SUBMITTAL: Applications will be ***conditionally*** accepted on the presumption that the information, materials and signatures are complete and accurate. If the application is incomplete or inaccurate, your project may be delayed until corrections or additions are received.

Applicant
Name: DPK Engineering David Kelly Title: President
Mailing Address: 32719 Windsor Terrace City: Fulshear State: TX
Zip: 77441
Phone: (281) 346-2616 Fax: (281) 346-2616 Email: david.kelly@dpkengineering.com

Owner By: HUGH T. STATUM, III
Name: CMH HOMES, INC Title: VICE PRESIDENT
Mailing Address: 5000 CLAYTON ROAD City: MARYVILLE State: TN
Zip: 37804
Phone: (865) 380-3000 Fax: (865) 380-3792 Email: TAB.STATUM@CLAYTONHOMES.COM

Engineer/Surveyor (if applicable)
Name: David P Kelly II Title: President DPK Eng
Mailing Address: 32719 Windsor Terrace City: Fulshear State: TX
Zip: 77441
Phone: (281) 346-2616 Fax: (281) 346-2616 Email: david.kelly@dpkengineering.com

Description of Proposed Project: Remodel Existing Site

Physical Location of Property: 27225 State Highway 249 between Alice
[General Location – approximate distance to nearest existing street corner] & Humble Rd

Legal Description of Property: CN. Pillot A632 Tract 1 (1.0A) Tract 2 (1.57AC)
[Survey/Abstract No. and Tracts; or platted Subdivision Name with Lots/Block]

Current Zoning District: ~~Commercial~~ AG

Current Use of Property: Clayton Homes (Mobile Home Sales)

Proposed Zoning District: Commercial

Proposed Use of Property: Manufactured Home Sales

City of Tomball, Texas 501 James Street, Tomball, Texas 77375 Phone: 281-290-1405 www.ci.tomball.tx.us

HCAD Identification Number: 0440580000001 ~~0440~~ 0440580000215 Acreage: 2.5721

Please note: A courtesy notification sign will be placed on the subject property during the public hearing process and will be removed when the case has been processed.

This is to certify that the information on this form is COMPLETE, TRUE, and CORRECT and the under signed is authorized to make this application. I understand that submitting this application does not constitute approval, and incomplete applications will result in delays and possible denial.

X _____ 1/20/11
Signature of Applicant **Date**

X _____ 1-11-11
Signature of Owner **Date**

Exhibit "E"
Conditional Use Permit Application

Revised 1/20/09

RECEIVED
JAN 21 2010
By

APPLICATION FOR CONDITIONAL USE PERMIT

Engineering & Planning Department

A conditional use is a land use which, because of its unique nature, is compatible with the permitted land uses in a given zoning district only upon a determination that the external effects of the use in relation to the existing and planned uses of adjoining property and the neighborhood can be mitigated through imposition of certain standards and conditions. This Section sets forth the standards used to evaluate proposed conditional uses and the procedures for approving conditional use permit (CUP) applications.

No conditional use shall be established and no building permit shall be issued for any use designated as a conditional use within any zoning district until a conditional use permit (CUP) is approved and issued in accordance with the provisions of this Section and Section 10 of The Zoning Ordinance.

APPLICATION SUBMITTAL: Applications will be ***conditionally*** accepted on the presumption that the information, materials and signatures are complete and accurate. If the application is incomplete or inaccurate, your project may be delayed until corrections or additions are received.

Applicant
Name: DPK Engineering David Kelly Title: President
Mailing Address: 32719 Windsor Terrace City: Fulshear State: TX
Zip: 77441
Phone: (281) 346-2616 Fax: (281) 346-2616 Email: david.kelly@dpkengineering.com

Owner BY HUGH T. STATUM, III
Name: CMH HOMES, INC. Title: VICE PRESIDENT
Mailing Address: 5000 CLAYTON ROAD City: MARYVILLE State: TN
Zip: 37804
Phone: (865) 380-3000 Fax: (865) 380-3792 Email: TAB.STATUM@CLAYTONHOMES.COM

Engineer/Surveyor (if applicable)
Name: David Kelly DPK Engineering Title: President
Mailing Address: 32719 Windsor Terrace City: Fulshear State: TX
Zip: 77441
Phone: (281) 346-2616 Fax: (281) 346-2616 Email: david.kelly@dpkengineering.com

City of Tomball, Texas 501 James Street, Tomball, Texas 77375 Phone: 281-290-1405 www.ci.tomball.tx.us

Description of Proposed Project: Remodel Existing Site

Physical Location of Property: 27225 State Highway 249 between Alice + Humbly
[General Location – approximate distance to nearest existing street corner]

Legal Description of Property: CN Pillot A 632 Tract 1(1.004c) Tract 2(1.57Ac)
[Survey/Abstract No. and Tracts; or platted Subdivision Name with Lots/Block]

HCAD Identification Number: 0440580000001 0440580000215 Acreage: 2.5721

Current Use of Property: Clayton Homes Manufactured Home Sales

Proposed Use of Property: same

Please note: A courtesy notification sign will be placed on the subject property during the public hearing process and will be removed when the case has been processed.

This is to certify that the information on this form is COMPLETE, TRUE, and CORRECT and the under signed is authorized to make this application. I understand that submitting this application does not constitute approval, and incomplete applications will result in delays and possible denial.

X _____ 1/20/11
Signature of Applicant **Date**

X _____ 1-11-11
Signature of Owner **Date**

Exhibit "F"
Rezoning Request Letter

DPK Engineering LLC

Land Development – Site Development - Municipal
32719 Windsor Terrace
Fulshear, Texas 77441
Tel/Fax: 281-346-2616

January 20, 2011

Kelly Violette
City Planner/Community Development Coordinator
City of Tomball
501 James Street | Tomball, TX 77375
Phone (281) 290-1491 | Fax - (281) 351-4735
kviolette@ci.tomball.tx.us

Reference: REZONING CLAYTON HOMES PROPERTY

Dear Mrs. Violette:

I have been requested by CMH Homes, Inc., the owner of the Clayton Homes at 27225 State Highway 249 in Tomball Texas, to request the rezoning of their existing property. The property is in the process of being replatted into a single lot and improvements are planned for the existing infrastructure. CMH Homes, Inc is proposing to update the existing sales office and reconfigure the layout which will be more conducive to sales and a more aesthetic setting. CMH Homes requests that the zoning is changed from AG to Commercial and that a conditional use permit be granted for this facility.

If you have any questions or concerns please feel free to contact me.

David P. Kelly II, P.E.
DPK Engineering LLC
32719 Windsor Terrace
Fulshear, Texas 77441
phone/fax: 281-346-2616
mobile: 281-300-1869
david.kelly@dpkengineering.com

Exhibit "G"
Concept Plan

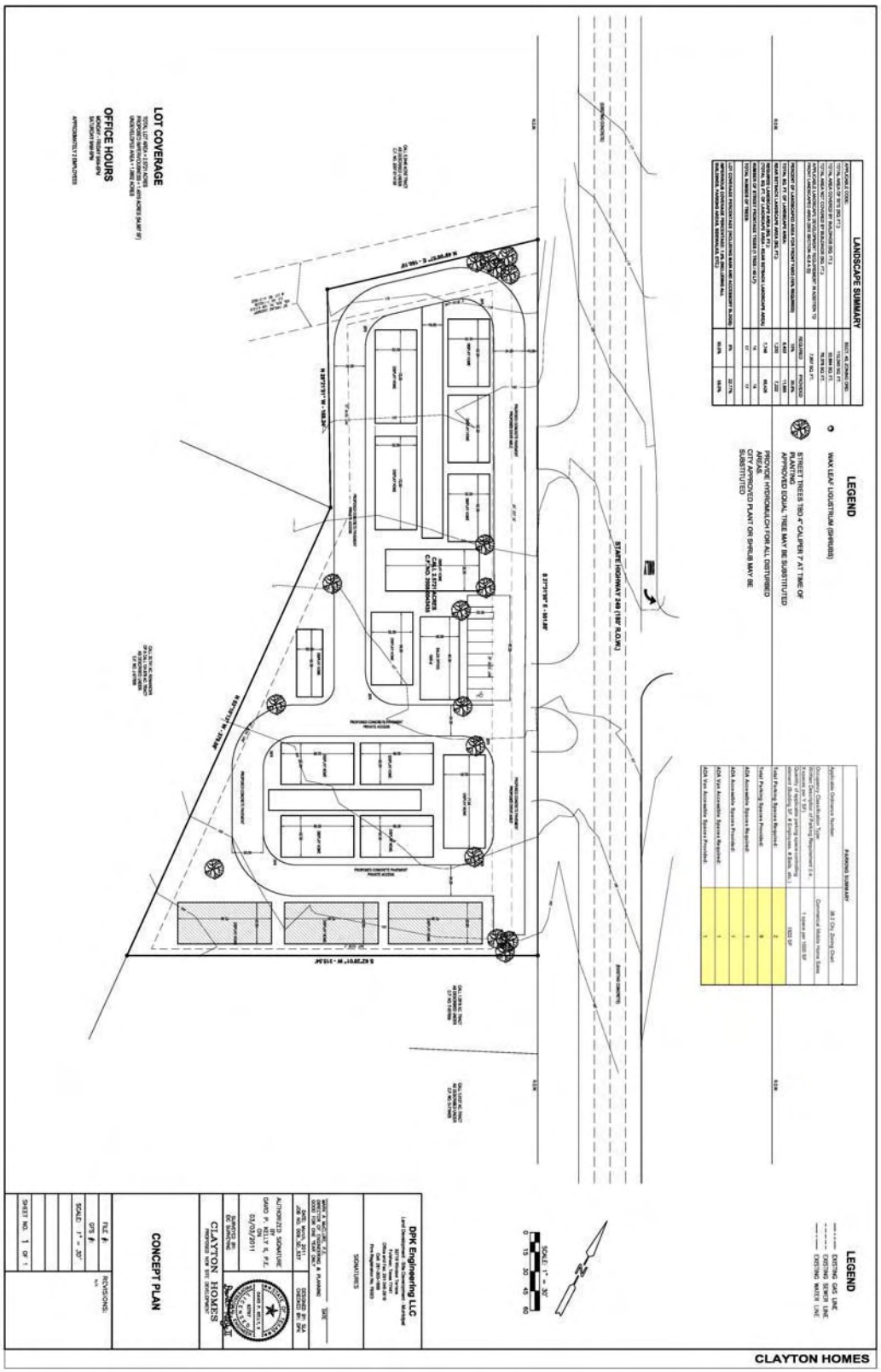


Exhibit "H"
Property Survey

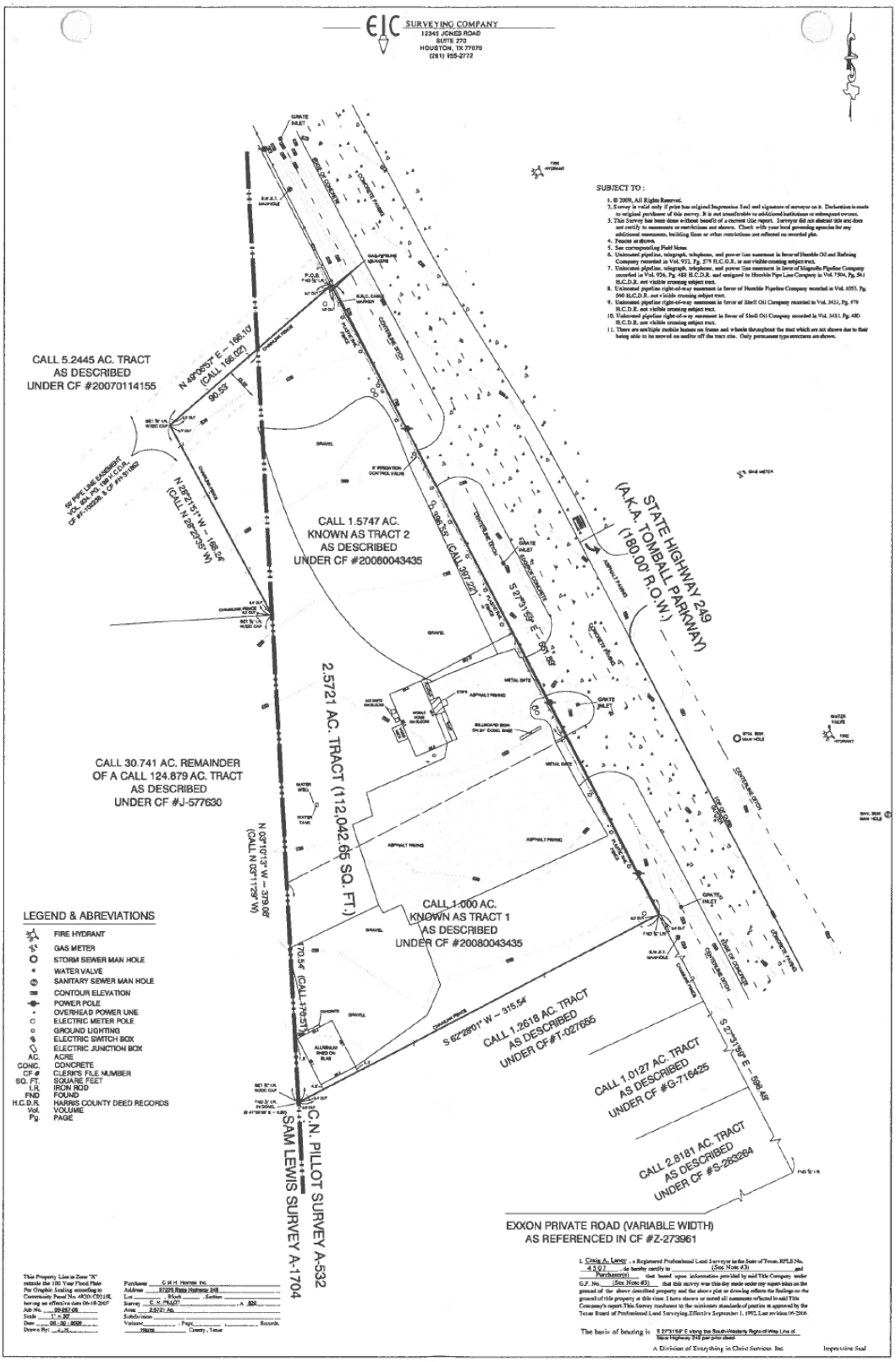


Exhibit "I"
Ordinance 2008-32 Annexation Map

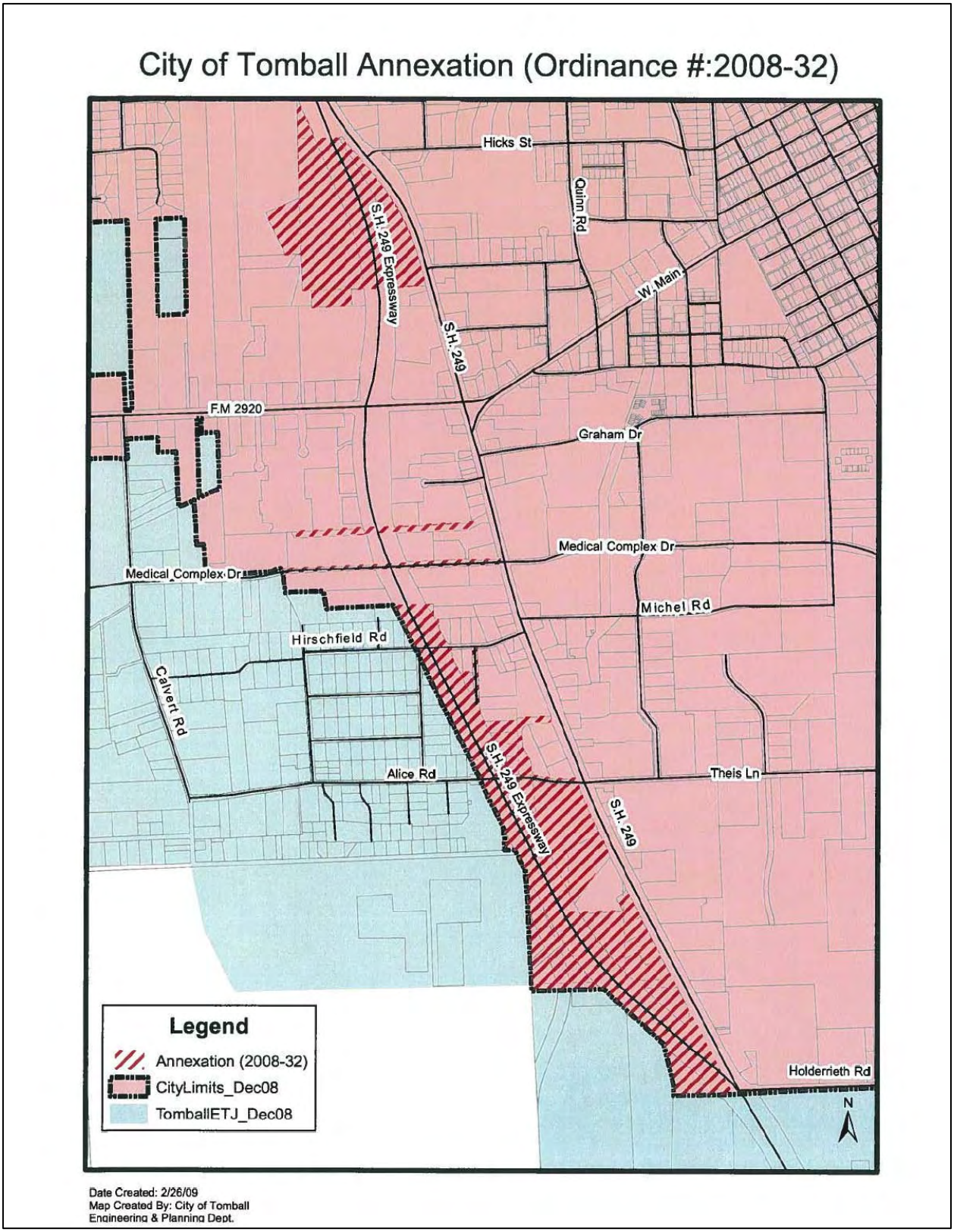


Exhibit "J"
Site Photos

Figure 1: Northerly view of subject site.

Figure 2: Excel Storage to the north of the subject site.

Figure 3: Tractor Supply to the east of subject site.

Figure 4: Tomball Rental Center to the south of subject site.

ORDINANCE NO. 2011-03

AN ORDINANCE OF THE CITY OF TOMBALL, TEXAS, AMENDING ITS COMPREHENSIVE ZONING ORDINANCE BY GRANTING A CONDITIONAL USE PERMIT TO CMH HOMES, INC., TO OPERATE A "MANUFACTURED HOME DISPLAY OR SALES (NEW OR USED)" FACILITY; SAID TRACT BEING LOCATED WITHIN THE CITY IN ZONING DISTRICT C-COMMERCIAL AND BEING LEGALLY DESCRIBED AS TRACTS 2V AND 2W OUT OF THE C.N. PILLOT SURVEY, ABSTRACT 632 AND TRACT 8A OUT OF THE SAM LEWIS SURVEY, ABSTRACT 1704, GENERALLY LOCATED ON THE WESTERLY SIDE OF STATE HIGHWAY 249, SOUTHERLY OF ALICE ROAD IN TOMBALL, TEXAS; PROVIDING REQUIREMENTS AND CONDITIONS FOR THIS CONDITIONAL USE PERMIT; CONTAINING FINDINGS AND OTHER PROVISIONS RELATING TO THE SUBJECT; PROVIDING A PENALTY IN AN AMOUNT NOT TO EXCEED TWO THOUSAND DOLLARS FOR VIOLATIONS HEREOF; AND PROVIDING FOR SEVERABILITY.

* * * * * * * * *

WHEREAS, David Kelly, on behalf of CMH Homes, Inc., has made application for a Conditional Use Permit to allow a "Manufactured Home Display or Sales (New or Used)" facility to operate in the C-Commercial District. The property is an approximately 2.57 acre site located at 27225 Texas 249, described on the tax maps as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, and generally located on the westerly side of State Highway 249, southerly of Alice Road, within the City of Tomball, Harris County, Texas; and

WHEREAS, the Property presently has a zoning classification of C-Commercial District, pursuant to the Comprehensive Zoning Ordinance of the City; and

WHEREAS, the Owner of the Property, through its duly authorized representative, has presented an application to the City for the granting of a Conditional Use Permit to allow a

DRAFT

"Manufactured Home Display or Sales (New or Used)" facility to operate in a Commercial District (the "Conditional Use"); and

WHEREAS, the Planning & Zoning Commission of the City, after notice and hearing as required by law, has recommended that the City Council grant the conditional use permit subject to the terms and conditions contained in the final report of said Commission; and,

WHEREAS, the City Council, following notice and hearing as required by law, concurs with the recommendation of the Planning & Zoning Commission that such specific use permit should be granted subject to the terms and conditions contained herein; now, therefore,

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF TOMBALL, TEXAS:

Section 1. The facts and matters set forth in the preamble of this Ordinance are hereby found to be true and correct.

Section 2. A Conditional Use Permit to allow a "Manufactured Home Display or Sales (New or Used)" facility to operate in a Commercial District, to CMH Homes, Inc., at 27225 Texas 249 Tomball, TX, in accordance with the application and plans submitted to the Planning and Zoning Commission on (date) and subject to the terms and conditions set forth below, is hereby granted to the Owner, including any successor in interest.

Section 3. The Official Zoning District Map of the City shall be revised and amended to show the Conditional Use authorized hereby for the Property as provided in Section 2 hereof, with the appropriate references thereon to the number and effective date of this Ordinance and a brief description of the nature of the Conditional Use authorized.

Section 4. This Ordinance shall in no manner amend, change, supplement, or revise any provision of any ordinance of the City, save and except the granting of the Conditional Use Permit as herein provided.

Section 5. The Conditional Use Permit granted hereby shall be null and void after the expiration of two (2) years from the date of adoption hereof unless the Property is being used in accordance with the Conditional Use herein authorized within said two-year period, or unless an extension of time is approved by City Council.

Section 6. The Conditional Use authorized and permitted hereby shall be, and is, subject to the following additional limitations, restrictions, and conditions:

A. The use of the "Manufactured Home Display or Sales (New or Used)" use shall not be enlarged, extended or relocated, nor may the number of manufactured homes or sales office be increased from what is shown on the approved Concept Plan without the approval of a revised concept plan or new CUP (Exhibit "A").

B. The use of the site will be limited to "Manufactured Home Display or Sales (New or Used)."

C. All proposed parking areas, loading areas, and drive aisles must adhere to the requirements of the Zoning Ordinance.

D. Off-street parking must be provided at a rate of 1 space per 1,000 square feet of gross sales office area.

E. All structures must adhere to the setback requirements of the Zoning Ordinance.

F. The subject site must be landscaped in accordance with the Zoning Ordinance.

G. All manufactured homes and sales offices adjacent to S.H. 249 must be skirted between the bottom of the manufactured home or office and the ground with a material harmonious with the appearance of the manufactured home or sales office. The skirting must be provided on all sides of structures that are adjacent and visible from public street right-of-way.

H. The final plat consolidating Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704 into one overall tract must be filed with Harris County before building permits shall be issued.

DRAFT

Section 7. Any person who shall violate any provision of this Ordinance shall be deemed guilty of a misdemeanor and, upon conviction, shall be fined in an amount not to exceed $2,000. Each day of violation shall constitute a separate offense.

Section 8. In the event any clause, phrase, provision, sentence, or part of this Ordinance or the application of the same to any person or circumstance shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Tomball, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, whether there be one or more parts.

FIRST READING:

READ, PASSED AND APPROVED AS SET OUT BELOW AT THE MEETING OF THE CITY COUNCIL OF THE CITY OF TOMBALL HELD ON THE 21ST DAY OF MARCH 2011.

COUNCILMAN QUINN _____
COUNCILMAN STOLL _____
COUNCILMAN BROWN _____
COUNCILMAN TOWNSEND _____
COUNCILMAN DODSON _____

SECOND READING:

READ, PASSED AND APPROVED AS SET OUT BELOW AT THE MEETING OF THE CITY COUNCIL OF THE CITY OF TOMBALL HELD ON THE 4TH DAY OF APRIL 2011.

COUNCILMAN QUINN _____
COUNCILMAN STOLL _____
COUNCILMAN BROWN _____
COUNCILMAN TOWNSEND _____
COUNCILMAN DODSON _____

DRAFT

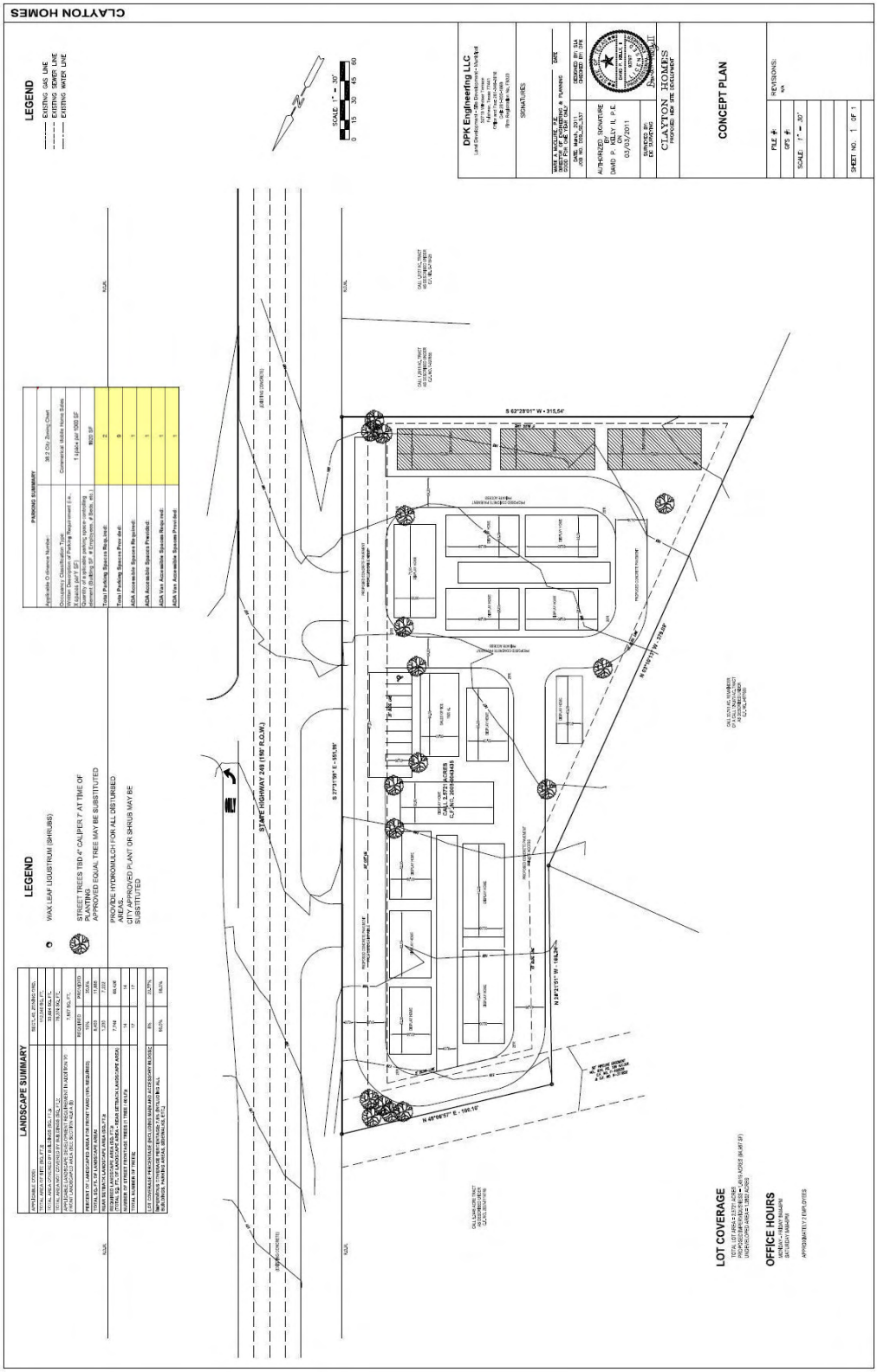
Gretchen Fagan, Mayor

ATTEST:

Doris Speer, City Secretary

DRAFT

Exhibit "A"
Concept Plan



NOTICE OF PUBLIC HEARINGS
CITY OF TOMBALL
PLANNING & ZONING COMMISSION
MARCH 14, 2011
&
CITY COUNCIL
MARCH 21, 2011

Notice is Hereby Given that Public Hearings will be held by the Planning & Zoning Commission of the City of Tomball on **Monday, March 14, 2011, at 6:00 P.M.,** and by the City Council of the City of Tomball on **Monday, March 21, 2011, at 7:00 P.M.** at Regular Meetings, in the City Council Chambers of the City of Tomball at City Hall, 401 Market Street, Tomball, Texas. On such dates, the Planning & Zoning Commission and City Council will consider the following:

ZONING CASE P11-302: Request by David Kelly, on behalf of CMH Homes, Inc. (Clayton Homes), to amend the City's Comprehensive Zoning Ordinance to rezone approximately 2.57 acres of land, legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, within the City of Tomball, Harris County, Texas, generally located on the westerly side of State Highway 249, southerly of Alice Road, from the AG-Agricultural District to the C-Commercial District.

ZONING CASE P11-303: Request by David Kelly, on behalf of CMH Homes, Inc. (Clayton Homes), for a Conditional Use Permit to operate a "Manufactured Home Display or Sales (New or Used)" facility. The property is an approximately 2.57 acre site, legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704, generally located on the westerly side of State Highway 249, southerly of Alice Road at 27225 State Highway 249, Tomball, Texas. The site is located in the AG-Agricultural and C-Commercial Districts. (This case will be heard in conjunction with Zoning Case P11-302).

Persons interested in these cases will be given an opportunity to be heard. Action by the Planning and Zoning Commission serves as a recommendation to the City Council and is not a final action on the request. Should the Planning & Zoning Commission vote to table a decision/recommendation on one or more of the above cases, the date and time of a future meeting will be specified and the City Council will not review the subject case until such a decision/recommendation is forwarded to the City Council by the Planning

and Zoning Commission. The application is available for public inspection Monday through Friday, holidays excepted, between the hours of 8:00 a.m. and 5:00 p.m. in the Engineering & Planning Department office, located at 501 James Street, Tomball, TX 77375. ***Contact City Planner*** Kelly Violette, (281) 290-1491, kviolette@ci.tomball.tx.us

C E R T I F I C A T I O N

I hereby certify that the above notice of meeting was posted on the bulletin board of City Hall; City of Tomball, Texas, a place readily accessible to the general public at all times, on the 10th day of March 2011 by 5:00 p.m., and remained posted for at least 72 continuous hours preceding the scheduled time of said meeting.

Brandy Pate
Brandy Pate
Senior Administrative Assistant

This facility is wheelchair accessible and accessible parking spaces are available. Requests for accommodations or interpretive services must be made 48 hours prior to this meeting. Please feel free to contact the City Secretary's office at (281) 290-1002 or FAX (281) 351-6256 for further information. AGENDAS MAY ALSO BE VIEWED ONLINE AT www.ci.tomball.tx.us.

Engineering and Planning Department

Notice of Public Hearing

YOU ARE INVITED TO ATTEND Public Hearings before the **PLANNING AND ZONING COMMISSION** and **CITY COUNCIL** of the City of Tomball regarding the following item:

CASE NUMBER: P11-303

APPLICANT: David Kelly, on behalf of CMH Homes, Inc. (Clayton Homes)

LOCATION: Westerly side of State Highway 249, southerly of Alice Road at 27225 State Highway 249, Tomball, Texas.

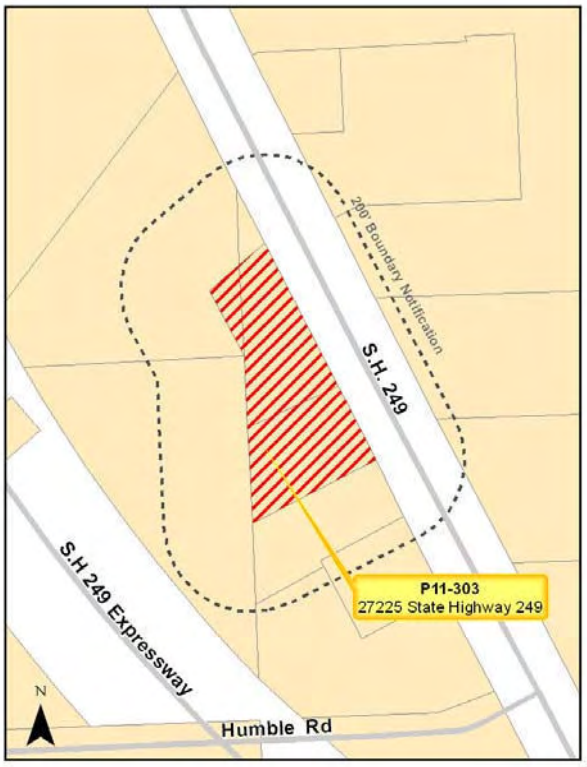
PROPOSAL: Request for a Conditional Use Permit to operate a "Manufactured Home Display or Sales (New or Used)" facility. The property is an approximately 2.57 acre site, legally described as Tracts 2V and 2W out of the C.N. Pillot Survey, Abstract 632 and Tract 8A out of the Sam Lewis Survey, Abstract 1704. The site is located in the AG-Agricultural and C-Commercial Districts. (This case will be heard in conjunction with Zoning Case P11-302).

* * *

CONTACT PLANNER: Kelly Violette
PHONE: (281) 290-1491
E-MAIL: kviolette@ci.tomball.tx.us

Interested parties may contact the City Planner between 8:00 a.m. and 5:00 p.m. Monday through Friday for further information. The rezoning application is available for public inspection Monday through Friday, holidays excepted, between the hours of 8:00 a.m. and 5:00 p.m. in the Engineering and Planning Department office, located at 501 James Street, Tomball, TX 77375. The staff report will be available no later than 4:00 p.m. on the Friday preceding the meeting.

This notice is being mailed to all owners of real property within 200 feet of the request as such ownership appears on the last approved Harris County Appraisal District tax roll. Interested parties may appear and speak on the project or the staff recommendation at the meeting. Written comments may also be submitted for consideration.



Planning and Zoning Commission
Public Hearing:
Monday, March 14, 2011, 6:00 PM

City Council Public Hearing:
***Monday, March 21, 2011, 7:00 PM**

The Public Hearings will be held in the City Council Chambers, City Hall 401 Market Street, Tomball, Texas

*Should the Planning & Zoning Commission vote to table the recommendation on the case, the date and time of a future meeting will be specified and the City Council will not review the subject case until such a recommendation is forwarded to the City Council by the Planning and Zoning Commission.

Regular City Council
Agenda Item
Data Sheet

Meeting Date: March 21, 2011

Topic:

Approve the 2010-2011 (Interim) Interlocal Agreement between the City of Tomball and the Tomball Independent School District (TISD), affording the Tomball Police Department the ability to assign a Student Resource Officer (SRO) to a TISD Campus.

Background:

The purpose of this Interlocal Agreement is to ensure that adequate services are provided to TISD as well as to define the scope of the duties and responsibilities of all interested parties. The officer assigned to TISD under this agreement will function as a SRO at the High School as well as teach a drug prevention program to students at the intermediate level.

The agreement is good for the duration of the 2010-2011 school year and will be renegotiated each year thereafter. This is a new agreement that will add an SRO to Tomball High School for the remainder of this school year.

The costs associated with this School Resource Officer position are reimbursed to the City as a 70% work equivalent (46 days) to cover the remainder of the regular school year. Total payment to City of Tomball from TISD for the remainder of the year will be $15,126.00.

Origination:

Robert S. Hauck, Chief of Police

Recommendation:

It is recommended that the City of Tomball enter into this Interlocal Agreement with the Tomball Independent School District.

Funding: Yes

Account Number: 121-100-5730

Party(ies) responsible for placing this item on agenda:

Robert S. Hauck, Chief of Police

ACTION TAKEN

APPROVAL	READINGS PASSED	OTHER
☐ YES ☐ NO	☐ 1ST ☐ 2ND	

ATTACHMENTS:

SRO-ILA

INTERLOCAL AGREEMENT
(Student Resource Officer)

1. PARTIES

1.1. The Parties to this Agreement are City of Tomball ("City"), a body corporate and politic under the laws of the State of Texas, and TOMBALL INDEPENDENT SCHOOL DISTRICT ("the Contractor").

2. PURPOSE

2.1. The Contractor wants the Chief of Police of the City of Tomball, Texas, to authorize and direct 1 law enforcement officer to devote 46 days of his/her working time, "working time" being defined as 8 hours per day, to the Contractor. The law enforcement officer referenced above will be referred to collectively as "extra officers" whether one or more.

3. TERM OF THE AGREEMENT

3.1. The term of this Agreement begins on March 30, 2011 and ends on July 31, 2011, unless terminated sooner in accordance with section 7.

4. CITY'S RIGHTS AND OBLIGATIONS

4.1. City agrees to authorize the Chief of Police to appoint the extra officer effective at the beginning of the contract term, so as to enable (but not require) the Chief of Police to appoint the extra officer to devote 46 days of his/her working time to Tomball Independent School District facilities ("the area"). As used herein, the phrase "working time devoted to the area" means the usual or normal hours that extra officer is required to work in any calendar month and does not include any extra or overtime work. The time the extra officer is on duty within the area, the time the extra officer is in court in connection with cases arising out of events occurring within the area, the time the extra officer spends preparing reports and documents pertaining to events occurring in the area, the time the extra officer spends in making preparations to provide law enforcement in the area, the time the extra officer spends transporting persons arrested in the area to jail, the time the extra officer spends investigating crimes or possible crimes committed in the area, are deemed working time devoted to the area. The activities listed above are explanatory and the meaning of "working time devoted to the area" is not limited to those activities.

4.2. Contractor understands and agrees that if the Chief of Police appoints the extra officer to the area, the Chief of Police retains the control and supervision of the extra officer to the same extent as he does other officers.

4.3. The extra officer assigned in accordance with this Agreement shall perform the duties as assigned by the Contractor, subject to the control and supervision of the Chief of Police and the City of Tomball. The rules, regulations, procedures, and policies of the City shall govern the performance of duties rendered pursuant to this agreement.

4.4 The Contractor shall provide an office, a networked computer, and general office supplies needed for the extra officers to perform their Student Resource Officer duties. The Chief of Police shall supply all equipment necessary to perform police functions and services.

5. CONTRACTOR'S PAYMENT OBLIGATION

5.1. The Contractor agrees to pay the City of Tomball the sum of FIFTEEN THOUSAND ONE HUNDRED TWENTY SIX DOLLARS ($15,126.00) to contract police services, or to be used by the City of Tomball for the purpose of supplementing the cost to the City for supplying the law enforcement services, including salaries and any additional expenses the City may incur in providing the services for a period of 30 days beginning the 20th day of April, 2011. Contractor must make payments on the total sum in installments, which are due and payable, without demand, on or before the following dates in the amounts set forth next to the dates:

$7,563 due on or before April 20, 2011
$7,563 due on or before May 20, 2011

5.2. If the term of this Agreement is terminated at any time other than at the end of a semester, payments under this Contract shall be prorated.

5.3. Contractor understands and agrees that if the City does not receive the payments within thirty (30) days of the date due, the City is authorized to terminate this Agreement without further notice. Further, City's failure to make demand for payments due is not a waiver of Contractor's obligation to make timely payments.

6. CITY'S PREROGATIVE TO APPOINT EXTRA OFFICERS

6.1. Contractor understands and agrees that this Agreement is not intended (nor shall it be construed) to obligate the Chief of Police in any manner whatsoever to assign the extra officer to devote any portion of his/her working time to the area. However, if for any reason the extra officer does not devote substantially 30 days of his/her full-time equivalent working time to the area during the term of this Agreement, then the Contractor is obligated to pay the City only a proportionate part of the total sum identified above. If the amount paid by the Contractor to City of Tomball exceeds the proportionate part, the Contractor is entitled to a refund from City of Tomball of the excess amount paid.

7. TERMINATION AND DEFAULT

7.1. Prior to the expiration of the term, either Party is authorized to terminate this Agreement without cause by giving to the other party at least thirty (30) days advance written notice of its intention to do so, specifying therein the effective date of such termination.

8. NOTICE

8.1. Any notice permitted or required to be given to City of Tomball hereunder may be given by registered or certified United States Mail, postage prepaid, return receipt requested, addressed to:

Tomball Police Department
Attn: Chief of Police
400 Fannin Street
Tomball, Texas 77375

Any notice permitted or required to be given to Contractor hereunder may be given by registered mail or certified United States Mail, postage prepaid, return receipt requested, addressed to:

Tomball Independent School District
Attn: Superintendent
221 West Main Street
Tomball, Texas 77375-5595.

Notice shall be deemed given upon deposit of the notice in the United States Mail as aforesaid.

8.2. Either Party may designate a different address by giving at least ten (10) days written notice in the manner provided above.

9. MISCELLANEOUS

9.1. The terms and provisions of this Contract constitute the entire Agreement between the City and the Contractor, and no modification of this Contract is effective unless in writing and executed by both parties.

SIGNED in duplicate originals this _____day of _____ 2011.

APPROVED AS TO FORM:

City of Tomball

ATTEST:

_____ _____

By: By:
Doris Speer Gretchen Fagan
City Secretary Mayor

Tomball Independent School District

ATTEST:

_____ _____

By: By:
Title John Neubauer
Superintendent

Regular City Council
Agenda Item
Data Sheet

Meeting Date: March 21, 2011

Topic:

Approve Service Agreement between the City of Tomball and the Sheriff's Association of Texas for Research and Evaluation of Gyroplane Aircraft used in Law Enforcement Operations.

Background:

In June 2010, the Tomball Police Department (TPD) was selected from a nationwide candidate pool to become a member of the United States Department of Justice (DOJ) Aviation Technology Working Group program. This working group is part of a project entitled, "Advancing Criminal Justice Policy, Practice, and Technology - Evaluation of Low-cost Aviation Options for Law Enforcement."

In support of this partnership between the TPD and the DOJ (administered by the Sheriff's Association of Texas-SAT), and in an effort to enhance public safety throught the City of Tomball and surrounding Harris and Montgomery Counties, the City Council allocated funding for the creation of the TPD Air Support Unit and the purchase of an Auto-Gyro MTOSport aircraft (N250TX). The monies ($40,000 dollars) provided to the City of Tomball by the SAT will be used to credit the Air Support Unit operations budget in order to fully fund it for FY 10-11, as previously approved by Council.

Origination:

Robert S. Hauck, Chief of Police

Recommendation:

Grant approval for the Chief of Police to execute the service agreement on behalf of the City of Tomball.

Funding: Yes

Account Number: 250-121-6403

Party(ies) responsible for placing this item on agenda:

Robert S. Hauck

ACTION TAKEN

APPROVAL	READINGS PASSED	OTHER
☐ YES ☐ NO	☐ 1ST ☐ 2ND	

ATTACHMENTS:

Service Agreement

SERVICES AGREEMENT

THIS AGREEMENT ("Agreement"), made and entered into on this 7th day of March, 2011, by and between **The Sheriffs' Association of Texas**, a Texas Non-Profit Corporation, hereinafter referred to as "SAT", and **The City of Tomball, Texas**, hereinafter referred to as "Department."

WITNESSETH:

WHEREAS, SAT is the recipient of Award #2009-IJ-CX-K017 from the National Institute of Justice at the U.S. Department of Justice (hereinafter known as "Grantor") for support of a project entitled "Advancing Criminal Justice Policy, Practice and Technology – Evaluation of Low-Cost Aviation Options for Law Enforcement", (hereinafter known as "Prime Award"); and

WHEREAS, SAT desires to contract with Department to provide research and evaluation of gyroplane aircraft used in daily law enforcement operations;

NOW, THEREFORE, in consideration of the premises and the mutual covenants contained herein, the parties hereto agree as follows:

1. **Provision of Services.** Beginning with the Effective Date, March 15, 2011, Department shall provide to SAT research and evaluation services of gyroplane aircraft as set forth in Exhibit 1, the "Statement of Work."

2. **Department's Responsibilities.** Department shall be responsible for the following:

   A. Supplying all equipment and supplies necessary to perform the Services, including the acquisition of the Auto-Gyro MTOsport gyroplane (N250TX).

   B. Providing all personnel necessary to perform the Services.

   C. Maintaining hull and liability insurance for aircraft.

   D. Paying for all expenses related to the operation of the aircraft, including fuel, maintenance and aircraft improvements. Notwithstanding the foregoing, SAT shall be responsible for the cost in providing initial pilot training to two (2) of Department's pilots, including travel expenses, lodging and incidental expenses at the government per diem rate, and the cost of instruction and fuel during initial instruction.

   E. Each Party shall maintain such insurance as it determines necessary for the risks associated with the Agreement. Neither party will be self-insured, provided, however, that either party may obtain insurance through a self-insurance pool.

4. Compensation. At the time this Agreement is signed by both parties, the Department shall be paid forty thousand dollars ($40,000) for the performance of the Services.

5. Term and Termination.

A. The term of this Agreement shall be one (1) year commencing on the "Effective Date," March 15, 2011.

6. Indemnification. To the extent permitted by law, each party does hereby agree to indemnify and hold harmless the other party, its officers, agents and employees, from and against any and all liability, losses, damages, claims, causes of action, and expenses connected therewith that is a result of the intentional conduct or negligence of the indemnifying party, or of its officers, employees or agents acting pursuant to and within the scope of this Agreement.

7. Miscellaneous.

A. **Severability:** Whenever possible, each provision shall be construed so as to be interpreted in such manner as to be effective and valid under applicable law. If any provision of this Agreement or the application thereof to any party or circumstance shall be prohibited by or be invalid under applicable law, such provision shall be ineffective to the extent of such prohibition without invalidating the remainder of such provision or any other provision of this Agreement or the application of such provisions to other parties or circumstances.

B. **Governing Law:** The validity, construction, interpretation and enforceability of this Agreement and the capacity of the parties shall be determined and governed by the substantive laws of the State of Texas. Venue for any action arising out of this Agreement shall lie exclusively in the federal and state courts located in Harris County, Texas.

C. **Assignment:** Neither party may assign or delegate any of its rights or obligations hereunder without first obtaining the prior written consent of the other party which consent shall not be unreasonably withheld. Any such assignment shall not release the assignor from the covenants or obligations imposed upon the assignor hereunder.

D. **Further Assurances:** Each party agrees to execute and to deliver such other and further instruments and to take such other actions as are reasonably necessary to effectuate the provisions of this Agreement.

E. **Collateral Agreements.** This Agreement constitutes the entire agreement between the parties respecting the subject matter contained herein, and there are no representations, warranties or commitments, except as set forth herein.

F. **Amendment.** This Agreement may be amended only by an instrument in writing executed by the parties hereto.

G. **Notices.** Any notice provided for in this Agreement and any other notice, demand or communication required or permitted to be given hereunder or which any party may wish to send to another ("Notice") shall be in writing and shall be served by (i) personal delivery; (ii) registered or certified U.S. Mail, or by comparable private carrier, First Class, return receipt requested in a sealed envelope, postage or other charges prepaid; or (iii) facsimile or other similar form of communication, addressed to the party for whom the Notice is intended as follows:

If to SAT:
Joe Peters
Sheriffs' Association of Texas
1601 S. IH-35
Austin, TX 78741

If to Department:
Chief Robert Hauck
Tomball Police Department
400 Fannin Street
Tomball, TX 77375

All Notices given pursuant to this Paragraph 5.G. shall be deemed given and effective when received if personally delivered or sent by facsimile or similar form of communication, or, if mailed, on the date shown on the return receipt, or, if a receipt has not then been received, five (5) calendar days after mailing, or, if sent by overnight courier, on the date shown for receipt on the courier's records.

H. **Status As Independent Contractor.** In the performance of this Agreement, Department shall at all times be and shall act as an independent contractor. Department shall have no authority to bind or in any way obligate SAT unless expressly authorized to do so in advance in writing.

I. **No Waiver.** No waiver, express or implied, of any breach of any provision of this Agreement shall be effective unless it is in writing and signed by the waiving party, and no such waiver shall be considered a waiver of any breach of any other provision of this Agreement, or of any subsequent breach of the same provision.

J. **Nondiscrimination.** The Department certifies that it has an active program for compliance with all applicable state and federal regulations, executive orders and legislation concerning non-discrimination, equal opportunity or affirmative action, and that wherever required, valid assurances of compliance are on file with the cognizant enforcement agency. The above statement includes, but is not limited to, the following specific acts:

Title IV of the Civil Rights Act of 1964
Executive Order 112426, Part II, Sub-part B, Section 202, paragraphs 1-6
Title VII of the Civil Rights Act of 1964 as amended by the EEO Act of 1972
Section 504 of the Rehabilitation Act of 1973
The Age Discrimination Act of 1976, as amended
Affirmative Action Obligations of Contractors and Subcontractors for

Disabled Veterans and Veterans of the Vietnam Era, Sub-part A, Paragraph 60-250.4
Title IX of the Higher Education Act of 1972

K. **Debarment and Suspension** - Department certifies, to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
(2) Have not within a three-year period preceding award of this subcontract been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or Local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
(3) Are not presently indicted for or otherwise criminally charged by a governmental entity (Federal, State or Local) with commission of any of the offenses enumerated in Paragraph 2 above;
(4) Have not within a three-year period preceding award of this subcontract had one or more public transactions (Federal, State or Local) terminated for cause or default.

L. Nothing in this Agreement shall be construed to provide any rights, benefits, or waiver of immunity to any person other than the named parties hereto.

IN WITNESS WHEREOF, the parties have entered into this Agreement by their duly authorized officers on the date first above written.

DEPARTMENT:

By: _____
Robert S. Hauck
Tomball Police Department

SAT:

By: _____
Joe Peters
Sheriffs' Association of Texas

Statement of Work
(Exhibit No. 1)

As referenced in the Provision of Services Section of the Service Agreement between the Sheriffs' Association of Texas, and the City of Tomball the following will be provided in support of the project entitled "Advancing Criminal Justice Policy, Practice and Technology – Evaluation of Low-Cost Aviation Options for Law Enforcement:"

- Mission Reports – at the conclusion of each training/operations flight, a mission report will be submitted via the Aviation Technology Program on-line reporting system;

- Monthly Reports – at the end of each month, a monthly program report will be provided via the Aviation Technology Program on-line reporting system;

- Year-End Report – at the conclusion of the research and evaluation period, a comprehensive report will be provided that addresses the following areas:

    - Introduction / Background
    - Project Phases
    - Training
    - Equipment
    - Cost Analysis
    - Field Operations
    - Conclusion / Recommendations