US Army Corps
of Engineers
Fort Worth District

Public Notice

Applicant: Dallas Water Utilities

Permit Application No.: SWF-2003-00689

Date: June 20, 2012

The purpose of this public notice is to inform you of a proposal for work in which you might be interested. It is also to solicit your comments and information to better enable us to make a reasonable decision on factors affecting the public interest. We hope you will participate in this process.

Regulatory Program

Since its early history, the U.S. Army Corps of Engineers has played an important role in the development of the nation's water resources. Originally, this involved construction of harbor fortifications and coastal defenses. Later duties included the improvement of waterways to provide avenues of commerce. An important part of our mission today is the protection of the nation's waterways through the administration of the U.S. Army Corps of Engineers Regulatory Program.

Section 10

The U.S. Army Corps of Engineers is directed by Congress under Section 10 of the Rivers and Harbors of 1899 (33 USC 403) to regulate *all work or structures in or affecting the course, condition or capacity of navigable waters of the United States*. The intent of this law is to protect the navigable capacity of waters important to interstate commerce.

Section 404

The U.S. Army Corps of Engineers is directed by Congress under Section 404 of the Clean Water Act (33 USC 1344) to regulate the *discharge of dredged and fill material into all waters of the United States, including wetlands.* The intent of the law is to protect the nation's waters from the indiscriminate discharge of material capable of causing pollution and to restore and maintain their chemical, physical and biological integrity.

Contact

Name: Mr. Eric Dephouse, Project Manager

Phone Number: (817) 886-1820

JOINT PUBLIC NOTICE

U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT

AND

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUBJECT: Application for a Department of the Army Permit under Section 404 of the Clean Water Act (CWA) and for water quality certification under Section 401 of the CWA to discharge dredged and fill material into waters of the United States (U.S.) associated with the creation of a pre-sedimentation basin for to treat raw water before it enters the Elm Fork water treatment plant in Dallas County, Texas.

APPLICANT: Dallas Water Utilities
2121 Main Street, Suite 300
Dallas, Texas 75201

APPLICATION NUMBER: SWF-2003-00689

DATE ISSUED: June 20, 2012

LOCATION: The project site is located west of the President George Bush Turnpike (PGBT), north of Snady Lake Road along both sides of the Elm Fork Trinity River (Elm Fork) in Dallas County, Texas. (Sheet 1 of 16). The U.S. Geological Survey (USGS) North American Datum of 1983 coordinates for the approximate center point of the proposed project are as follows: Latitude 32.980900° North, Longitude 96.942430° West. The site is mapped on the Carrolton, TX 7.5-minute USGS quadrangle map. The site is located in the Elm Fork Trinity River Basin Watershed - USGS Hydrologic Unit 12030103.

OTHER AGENCY AUTHORIZATIONS: Section 401 State Water Quality Certification

PROJECT DESCRIPTION: Dallas Water Utilities (DWU) proposes to discharge approximately 101,450 cubic yards of dredged and fill material into 9.4 acres of waters of the U.S. in conjunction with the construction of earthen berms within existing open water features to create a pre-sedimentation basin for the Elm Fork Water Treatment Plant. Additionally, 0.4 acres of non-forested wetland, and 0.4 acre (100 linear feet) of perennial stream would be temporarily affected by the proposed project (Sheets 3 through 10 of 16).

The Elm Fork Treatment Plant (Plant) is one of three treatment plants operated by Dallas Water Utilities (DWU), located on Whitlock Lane and Old Denton Road in the City of Carrollton, Texas. Currently, the Plant withdraws raw water directly from the Elm Fork. The project proposes to pre-treat raw water with the use of pre-sedimentation basins before it enters the Plant, allowing a portion of suspended solids to settle out of the raw water supply before entering the treatment process. This concept of utilizing pre-sedimentation basins as a pre-treatment measure has proved to be successful at the DWU Bachman Water Treatment Plant. The

Bachman Plant Intake Structure Modifications project, completed in 1996, diverts raw water through Fishing Hole Lake, which results in improved raw water quality and reduced treatment costs.

The construction of the PGBT near Interstate 35E has resulted in the creation of two Hydraulic Mitigation Areas (HMA) located in close vicinity to the existing Plant intake structure, identified as HMA-1B and HMA-2B. The HMAs, along with existing nearby open water lakes, Weaver Lake I and Weaver Lake II, were identified as ideal candidates for the Plant's pre-sedimentation basins.

Transferring the water through the pre-sedimentation system would require the construction of multiple components to connect the individual basins (Sheet 3 of 16). As raw water would flow through the system, the sequence of components include the river intake channel and structure, the Weaver Lakes I and II components, the HMA-1B components, the inverted siphons, the HMA-2B components, and the plant intake junction structures. A final component of construction would include a bridge crossing over Denton Creek for maintenance access. All of the basin structures are sized to handle the Plant ultimate demand of 500 million gallons per day (MGD). The structures are also sized to maintain approach and flow-through velocities below two feet per second. This design criterion is important to minimize particle re-suspension around the structures. Water flow rates through the system at any given moment would be dependent on plant demand. The exception would be after rain events when the water level in the river rises and flows into the system, regardless of plant demand.

The flow through the basins would be facilitated by a difference in hydraulic grade (water surface elevation) between the proposed river intake and the system outfall at the proposed junction structures. The hydraulic grade at the proposed river intake is controlled by the Carrollton Dam at Sandy Lake Road, which maintains a minimum water elevation of 433.40 AMSL. Since the water would not fall below this level, there would be sufficient hydraulic grade to allow flow through the system. A hydraulic model was developed to simulate and confirm flow conditions through the pre-sedimentation basin system. The function of each of the project components, including the justification for construction in waters of the United States, is described in more detail in the following sections.

River Intake Structure

Raw water would enter the pre-sedimentation system through an intake channel located along the Elm Fork. This intake channel would divert a portion of flow from the Elm Fork through an intake structure and into Weaver Lake II.

Intake Channel

As part of this Project, an open channel would be constructed to divert a portion of the flow in the Elm Fork into Weaver Lake II, into the pre-sedimentation system (Sheet 4 of 16). Twelve-inch diameter piers would be constructed at the river connection to prevent large floating debris and watercraft from entering the intake channel. Pier locations would be situated on what is the existing river bank slopes and would not be within the existing Elm Fork channel. The earthen

intake channel would be excavated within uplands to an elevation of 425' AMSL, which would be below the minimum water surface elevation of the Elm Fork, with 3:1 side slopes and a 40-foot channel base.

Any discharges into the Elm Fork would be incidental in nature as the final intake channel connection is established. Construction would occur during anticipated low flow times of the year when the river flow rate is controlled by the release rate upstream from the Lake Lewisville Dam. It is not anticipated that the use of coffer dams or temporary dewatering of the Elm Fork channel would be needed at this location.

Any discharges into the waters of the United States as a result of this component would include the temporary placement of a coffer dam in the northern portion of Weaver Lake II. This earthen berm would be used to temporarily dewater approximately 1.6 acres of Weaver Lake II to facilitate the construction of the connection of the intake channel into Weaver Lake II. Re-grading of the existing lake bottom is expected to be within an area approximately 0.6 acres in size; however, an extra acre was added to the total dewatering area as a buffer to construction activities. Most of the work associated with the connection would be the excavation of the intake channel within uplands.

Concrete Intake Structure

A cast-in-place concrete intake structure would be located within the intake channel, between the Elm Fork and Weaver Lake II, to provide coarse screening and flow control (Sheet 5 of 16). Flow through the intake structure would be divided between three parallel channels. Each channel would include a sluice gate to allow DWU to control the flow into the pre-sedimentation basin system. These gates provide the flexibility to control flow through the structure under different river conditions. An access roadway and a bridge across the structure would be provided to allow for operation and maintenance, including the removal of collected screenings.

The proposed intake structure would include a river intake screen or "trash rack," sized to keep large debris and trash within the intake channel out of the system. The intake screen would consist of a bar rack with two inches of clear space between the bars. The space provided between the bars should allow for the passage of smaller aquatic species, and should not adversely impact fish and wildlife. A rake mechanism would clean the screen based on a timer, or a head differential across the screen, or both. The rake operation is independent of flow, although it would theoretically operate more during flood events when the amount of debris in the river is greater. Screenings would be removed as necessary to keep a clean screen. Since flow is continuous through the screens, any debris not completely removed by the rake mechanism would be re-trapped on the screen.

Construction of the intake structure within the intake channel would occur prior to making any connection to the surface tributary system (i.e. constructed in the dry). Since the intake channel would be constructed within uplands, the placement of concrete for the intake structure within the channel would not be considered a discharge into waters of the United States.

Weaver Lake I and Weaver Lake II Components

Weaver Lake II Berm

A berm is proposed for Weaver Lake II to minimize short-circuiting between the intake channel and the channel connecting Weaver Lake II to Weaver Lake I (Sheet 6 of 16). Minimizing short-circuiting improves the average settling performance through the first basin. The earthen berm would extend in a northwest direction approximately 1,100 linear feet from the northeast corner of the lake. A typical cross section shows the width at the base of the berm would be approximately 200 feet, although this measurement is dependent on the location of the section. The earthen berm would utilize material excavated for the construction of the river intake channel, and approximately 69,100 cubic yards of fill would be placed below the OHWM of the lake. The top of the berm would extend approximately 4 feet above the normal water surface elevation in the lake. The placement of fill material for berm construction would constitute a permanent loss of approximately 4.7 acres of waters of the United States. No temporary impacts associated with berm construction are anticipated.

Weaver Lake II to Weaver Lake I Channel

An open channel would be constructed through the existing Oncor right-of-way berm that separates Weaver Lake II from Weaver Lake I to connect the two lakes (Sheet 7 of 16). The proposed earthen channel would have a bottom width of 40 feet, with 2:1 side slopes for the first eight feet of depth up to the minimum water level. Side slopes would transition to 4:1 above the minimum water level and extend to the existing grade. The proposed channel at normal pool elevation would be approximately 76 feet wide. The majority of the construction of the channel would involve the excavation of uplands. A bridge is proposed across the channel to maintain access for Oncor and provide primary access for DWU. The 15-foot wide bridge would have an approximate span of 160 feet, the approximate width of the channel from top-of-slope to top-of-slope.

The temporary use of coffer dams and the temporary dewatering of a total of approximately 1.4 acres within Weaver Lake II and Weaver Lake I would be required during construction of the channel. Minimal grading required to match channel grades with the existing bottom contours of the lakes is expected to be within an area approximately 0.4 acres in size; however, an extra acre was added to the total dewatering area as a buffer to construction activities. The coffer dams would be constructed using material excavated onsite, and water would be pumped from the construction area. The removal of coffer dams and flooding of the channel would occur only after completion of all components within this area. Construction in this manner would result in temporary discharges associated with the coffer dams and would not constitute a permanent loss of waters of the United States.

Construction of the bridge across the channel would occur prior to making any connection to the surface tributary system (i.e. constructed in the dry). One set of piers would be placed within the newly constructed channel as bridge support. Approximately 40 feet of rock rip-rap would be placed along the channel side slopes to an elevation of 436 AMSL, as protection against erosion (Sheet 7 of 16). Since the channel would be constructed within uplands, the placement of bridge

piers and rock rip-rap within the channel prior to removal of the coffer dams would not be considered a discharge into waters of the United States.

Weaver Lake I Connection to HMA-1B

An open channel would connect Weaver Lake I to the northwestern corner of HMA-1B and into a proposed open bypass channel located within HMA-1B (Sheet 8 of 16). This connection channel would be identical in cross-section as the channel connecting Weaver Lake II and Weaver Lake I, but would not include a bridge since the maintenance road would be located along the perimeter of HMA-1B within this area.

The channel would be excavated within uplands. The use of coffer dams is not anticipated at this location as the project is proposed to be constructed in the summer months, in which water levels may be sufficient as to not require dewatering. Should dewatering be required, a temporary berm would be constructed partially (height-wise) using material excavated onsite for other project components. Water would then be pumped from the construction area. Any discharges into Weaver Lake I or HMA-IB for this component would be incidental in nature.

HMA-1B Components

HMA-1B Bypass Channel and Berm

The role of HMA-1B in the pre-sedimentation basin system is minimal due to valley storage considerations and the lack of the existing basin depth. As such, HMA-1B would be bypassed using an open earthen channel to transfer water from Weaver Lake I to the inverted siphon intake structure (Sheet 8 of 16). This bypass channel would be separated from the remainder of HMA-1B through the construction of a berm along the southern slope of the channel. The berm would allow the system to operate more efficiently without backwater effects from the Elm Fork during frequent storm events. The berm eventually could be overtopped during significantly larger storm events. In such an event, the system would function regardless of river stage in the Elm Fork, although the solids removal efficiency of the system may be temporarily reduced during significant flood events.

The earthen bypass channel would be constructed with a 40- to 50-foot base and 3:1 slopes below the minimum surface elevation, with 4:1 slopes above. Approximately 1.0 acre of HMA-1B would be temporarily impacted by channel excavation. Because the post-construction condition would still remain an open water feature there would be no permanent impacts associated with this activity. The berm would be constructed with a base width of approximately 130 feet and 4:1 slopes. Material from the bypass channel excavation would be used to create the berm within HMA-1B; approximately 26,200 cubic yards of material would be cut from HMA-1B for the excavation of the bypass channel and 18,500 cubic yards of fill would be placed below the OWHM of HMA-1B for the berm. HMA-1B is considered a water of the United States on the basis of a direct connection to the Elm Fork. Discharges within waters of the United States associated with the construction of the berm within HMA-1B would constitute approximately 3.3 acres of permanent impacts.

Inverted Siphon Intake Structure

The proposed bypass channel would transfer water from Weaver Lake I to the inverted siphon intake structure required in the northeastern corner of HMA-1B, at the upstream terminus of the inverted siphon (Sheets 8 and 9 of 16). This structure may include three inlets with bar racks at each inlet to prevent large objects from entering the siphon. Three-inch diameter galvanized tube spaced on 6-inch centers would cover the inverted siphon inlets to keep large debris from entering the pipes. Each inlet would include a sluice gate to allow DWU to control the flow through each inverted siphon; moreover, each siphon may be closed and emptied for cleaning and maintenance. The gates would be operated manually as-needed, probably once per quarter. The structure would be designed to provide access for personnel and cleaning equipment, such as a compact skid-steer loader (e.g. Bobcat), if needed. Other mechanical equipment to dredge the basins or clean the inverted siphons would be used infrequently, perhaps once every 30-40 years. A maintenance road would provide access directly to the structure.

The siphons are sized to accommodate the ultimate flow of 500 million gallons per day. Each individual siphon barrel would consistently convey between 100 and 200 MGD (150-300 cfs) by opening/closing sluice gates based on the seasonal demand rate. The inverted siphon intake structure would be constructed within the footprint of the bypass channel. No additional impacts to waters of the United States would be expected from the construction of this component.

<u>Inverted Siphon</u>

Water would be transferred from HMA-1B to HMA-2B through inverted siphons under the Elm Fork (Sheets 10 and 12 of 16). Construction of the inverted siphon would result in temporary impacts to the Elm Fork and the emergent wetlands that have developed in the bottom of the HMA overflow swales. Three 120-inch diameter pipes, approximately 1,100 linear feet in length, are required to convey the ultimate flow of 500 MGD. Pre-stressed concrete cylinder pipe (PCCP) is the recommended material for the siphons. The PCCP provides a water-tight joint, which would be crucial for the safety of personnel that must enter the pipes for cleaning and maintenance.

Three alternatives exist for construction of the inverted siphons: (1) the siphons could be tunneled below the Elm Fork, (2) the siphon lines could be installed by open cut methods and dewatering via coffer dams, or (3) the siphon lines could be installed by open cut methods and dewatering via a diversion channel. The inverted siphon construction would occur during anticipated low flow times of the year to avoid seasonal flooding and high river levels. Based upon research with contractors experienced in utility construction across waterways, the open cut option using coffer dams would be the fastest, most cost-effective construction method and the preferred alternative.

The approximate width of the Elm Fork at the siphon crossing is approximately 150 feet. During construction, the PCCP would be placed in an excavated trench and subsequently backfilled in place to match pre-existing contours. The depth of cover from the top of the PCCP would be approximately 8-10 feet and rip-rap or other protection measures are not prescribed. Currently, Elm Fork flow elevations are maintained very near the bottom elevation of the HMA outflow

channels. As such, any Elm Fork bank that would be cut during construction may be inundated for a greater part of the year. Since vegetation is not present in the current state, revegetation of the channel slopes is not proposed. Approximately 0.4 acres of the Elm Fork would be temporarily impacted by the proposed construction of the inverted siphons.

A majority of the length of siphon would be constructed in the bottom of the HMA overflow swales. Construction in this manner would be similar to that described for the Elm Fork crossing. Approximate depth of cover would be greater (approximately 15 feet) as the bottom depths of the overflow swales are much shallower than that of the Elm Fork. The overflow swales would be restored to pre-existing conditions, including the use of a coir erosion control blanket, and reseeded with a native grass cover. Given the prolonged saturated conditions, it is anticipated that these areas would quickly reestablish as a cattail dominated community. Approximately 0.2 acres of HMA-1B's overflow swale and 0.2 acres of HMA-2B's overflow swale would be temporarily impacted by the proposed construction of the inverted siphons.

HMA-2B Components

Inverted Siphon Outfall Structure and Stormwater Bypass Channel

The inverted siphon outfall structure would be located at the downstream terminus of the inverted siphons, at the northern end of HMA-2B (Sheets 10 and 11 of 16). The northern-most portion of HMA-2B would be filled for the construction of the inverted siphon outfall structure. A retaining wall would be put into place flush with the outfall structure, creating the new northern shoreline of HMA-2B. Sluice gates would be provided as part of the outfall structure to prevent backflow into the pipes when maintenance and cleaning is performed. The structure would also be designed to provide access for personnel and cleaning equipment. A flex base maintenance road would be constructed above the western shoreline of HMA-2B to provide access to the HMA-2B inverted siphon outfall structure.

The PGBT right-of-way runs north-south above the eastern shoreline of HMA-2B. Three separate, existing stormwater outfalls located along the PGBT right-of-way outfall into HMA-2B, one of which contains three 7-foot by 6-foot reinforced concrete boxes (RCB). To segregate the raw water in the pre-sedimentation basin system from stormwater runoff collected along the PGBT, a stormwater 10' x 10' conduit would be constructed parallel to the eastern shoreline of HMA-2B to collect stormwater from the three outfalls. The stormwater bypass channel would require excavation of upland areas, and some fill and re-grading of the north of HMA-2B. The stormwater conduit would flow north from the outfall that consists of the three 7-foot by 6-foot RCBs, and would tie into the existing HMA-2B overflow swale. An existing 48-inch reinforced concrete pipe that outfalls into HMA-2B, connecting HMA-2A to HMA-2B, would be adjusted to outfall into the stormwater bypass channel as well.

HMA-2B is considered a water of the United States on the basis of a direct connection to the Elm Fork. The proposed construction of the inverted siphon outfall structure and stormwater bypass channel would impact approximately 1.3 acres of waters of the United States within HMA-2B; approximately 13,300 cubic yards of fill would be placed below the OHWM of HMA-2B.

HMA-2B Outfall Structure

The HMA-2B outfall structure would be located at the southern end of the basin (Sheet 13 and 14 of 16). Three 96-inch reinforced concrete conduit pipe lines would collect water from HMA-2B and tie into the existing raw water supply lines at two junction structures. As with the other outfall and intake structures, a screen in the form of a bar rack would prevent large debris from entering the system. Sluice gates at both junction structures would provide flow control. Rock rip-rap would be placed immediately before the HMA-2B outfall structure. The current DWU maintenance road serving the existing river intake structure is suitable for providing access to the HMA-2B outfall structure.

Approximately 550 cubic yards of material would be excavated below the OHWM of HMA-2B in association with the creation of the HMA-2B outfall structure. The proposed construction of the HMA-2B outfall structure would result in the impact of approximately 0.1 acres of waters of the United States within HMA-2B.

Plant Intake Junction Structures

The outlet lines from the pre-sedimentation system would connect to the existing raw water intake lines at two cast-in-place concrete junction structures located south of HMA-2B (**Sheet 13 and 15 of 16**). The three 96-inch lines that convey the water from HMA-2B would tie into Structure A. Two (2) 96-inch diameter RCCP transfer lines would connect Structure A to Structure B. Sluice gates would be installed at each inlet and outlet in the structures. Junction Structure B would include allowances for a future 96-inch diameter raw water supply line to handle the future plant capacity of 500 MGD. All construction associated with this component would occur in an upland and result in no discharges into waters of the United States.

Denton Creek Bridge Crossing

Access to the various components of the project would be maintained through an access agreement with Oncor along an existing Oncor easement that divides Weaver Lake I from Weaver Lake II. This access would improve an existing gravel road that is currently maintained by Oncor. However, to provide access from Sandy Lake Road from the south, a new bridge would be constructed across Denton Creek (Sheet 16 of 16). The bridge location would utilize an open corridor that was previously occupied by an older bridge that has since been removed. The new bridge abutments would be constructed above the OHWM of Denton Creek and facilitate a spanned crossing. Forty feet of rock rip-rap would be placed along the slopes of Denton Creek above the OHWM to the bridge abutments. A temporary road crossing would not be necessary across Denton Creek for construction, as secondary access is available from the adjacent properties to the north. As such, the Denton Creek crossing would result in no discharges to waters of the United States.

Elm Fork Bridge Crossing

To facilitate access to the project area during construction, a temporary bridge over the Elm Fork Trinity River may be used. The bridge would clear span the entire channel and would not

require the placement of piers in the bank or below the plane of the OHWM. Upon project completion the bridge would be removed. No temporary or permanent impacts to waters of the United States are anticipated as a result of this activity.

TABLE 1
Proposed Impacts to Waters of the U.S.

Water body Type	Permanent		Temporary	
	Acres	LF	Acres	LF
Non-forested wetland	-	-	0.4	-
Perennial stream	-	-	0.4	100
Open Water	9.4	-	4.0	-
Total:	**9.4**	**-**	**4.8**	**100**

ALTERNATIVE SITE LOCATIONS AND ALTERNATIVE LAYOUTS: The project site was predicated by the existing plant intake structure on the east bank of the Elm Fork. The proposed project as a whole is a derivation of an initial proposal submitted to DWU in an early viability study. Subsequent preliminary investigation results revealed several critical issues that led to the development and evaluation of the following five different project alternatives:

- **Alternative 1** – The original concept that was presented in the viability study, which includes four basins, and the deepening of HMA-1B.
- **Alternative 2** – HMA-1B is not excavated further, and an open channel across the north side of the basin connects Weaver Lake I directly to the inverted siphon.
- **Alternative 3** – HMA-1B is not excavated further, and an open channel across the south side of the basin connects Weaver Lake I directly to the inverted siphon. The siphon crosses the river near the existing river intake structure, bypassing HMA-2B as well.
- **Alternative 4** – Identical to Alternative 3, except that the siphon structure is constructed on dry ground. Once the siphon is in place, the river is then realigned over the siphon. The old river channel is backfilled, and the outfall of the siphon flows directly into the existing intake structure.
- **Alternative 5** – The existing plant intake lines are diverted into HMA-2B, where a self-cleaning fabric curtain filters the raw-water before it re-enters the intake lines.

Alternatives 1 and 2 included three additional methods for handling the stormwater runoff that would discharge into HMA-2B. These methods were designated as Alternatives A, B and C. In Alternative A, the storm sewers extend around HMA-2B and discharge into HMA-2A to the north or directly to the river. Basin HMA-2B is divided into two halves in Alternative B with an earthen berm south of the proposed stormwater outfall. The siphon in this alternative must be extended to reach the southern half of HMA-2B; the northern half of HMA-2B operates as a storm water detention basin. Alternative C includes a stormwater treatment unit at the outfall of the storm sewer, which is designed to remove a portion of the oils, greases, and sediment washed off of the roadway. Stormwater discharges into HMA-2B after flowing through the treatment device.

Each of the system alternatives was described in detail in the feasibility report and was evaluated based on estimated construction costs, permitting requirements, water quality impacts, site access, constructability, and other pertinent criteria. The feasibility report recommended further development of Alternatives 2A and 2B. Alternatives 3 and 4 were identified as viable alternatives, although they would require more time and effort to receive the necessary permits as they would involve the river channel and reforestation areas. Alternative 5 was not recommended for further analysis due to high capital and operation costs. The recommended alternative is a refinement of Alternative 2B after considering results from subsequent field investigations.

COMPENSATORY MITIGATION: DWU proposes to compensate for the loss of aquatic functions associated with the waters of the U.S. through the purchase of mitigation banking credits. The project area is located within the service area of several mitigation banks including the Bunker Sands Mitigation Bank, South Forks Trinity River Mitigation Bank, and Trinity River Mitigation Bank. As such, the applicant proposes to purchase the appropriate number of credits from one of the available banks, or a combination thereof, depending on which bank has the required number of credits available in the final stages of the permitting process.

PUBLIC INTEREST REVIEW FACTORS: This application will be reviewed in accordance with 33 CFR 320-331, the Regulatory Program of the U. S. Army Corps of Engineers (USACE), and other pertinent laws, regulations, and executive orders. Our evaluation will also follow the guidelines published by the U. S. Environmental Protection Agency pursuant to Section 404(b)(1) of the CWA. The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impact, of the proposed activity on the public interest. That decision will reflect the national concerns for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including its cumulative effects. Among the factors addressed are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

The USACE is soliciting comments from the public; federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the USACE in determining whether to issue; issue with modifications or conditions; or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

STATE WATER QUALITY CERTIFICATION: This project would result in a direct impact of greater than three acres of waters of the state or 1,500 LF of streams (or a combination of the two is above the threshold), and as such would not fulfill Tier I criteria for the project. Therefore,

TCEQ certification is required. Concurrent with USACE processing of this Department of the Army application, the TCEQ is reviewing this application under Section 401 of the CWA, and Title 30, Texas Administrative Code Section 279.1-13 to determine if the work would comply with State water quality standards. By virtue of an agreement between the USACE and the TCEQ, this public notice is also issued for the purpose of advising all known interested persons that there is pending before the TCEQ a decision on water quality certification under such act. **Any comments concerning this application may be submitted to the Texas Commission on Environmental Quality, 401 Coordinator, MSC-150, P.O. Box 13087, Austin, Texas 78711-3087.** The public comment period extends 30 days from the date of publication of this notice. A copy of the public notice with a description of the work is made available for review in the TCEQ's Austin Office. The TCEQ may conduct a public meeting to consider all comments concerning water quality if requested in writing. A request for a public meeting must contain the following information: the name, mailing address, application number, or other recognizable reference to the application; a brief description of the interest of the requestor, or of persons represented by the requestor; and a brief description of how the application, if granted, would adversely affect such interest.

ENDANGERED AND THREATENED SPECIES: The USACE has reviewed the U.S. Fish and Wildlife Service's latest published version of endangered and threatened species to determine if any may occur in the project area. The proposed project would be located in Dallas County where the black-capped vireo (*Vireo atricapilla*), golden-cheeked warbler (*Dendroica chrysoparia*), whooping crane (*Grus americana*), least tern (*Sterna antillarum*), piping plover (*Charadrius melodus*), and bald eagle (*Haliaeetus leucocephalus*) are known to occur or may occur as migrants. The black-capped vireo, golden-cheeked warbler, whooping crane, least tern, and piping plover are all listed as endangered species and the bald eagle has been delisted but is being monitored. Our initial review indicates that the proposed work would have no effect on federally-listed endangered or threatened species.

NATIONAL REGISTER OF HISTORIC PLACES: In July 2004, a geoarcheological evaluation of the various construction areas prior to the proposed development activities. The purpose of the evaluation, which was conducted under Texas Antiquities Permit Number 3516, was to examine the deeply buried sediments for archeological potential, and to prospect for archeological sites in the areas with the greatest potential. While useful data were collected concerning the stratigraphy of the Elm Fork floodplain, no cultural materials were identified during the course of the project. Therefore, from a cultural resources perspective, no further investigation would be required. No sites listed in or eligible for inclusion in the National Register of Historic Places (NRHP) are known to exist on the proposed project property. No additional work to identify historic properties is currently planned.

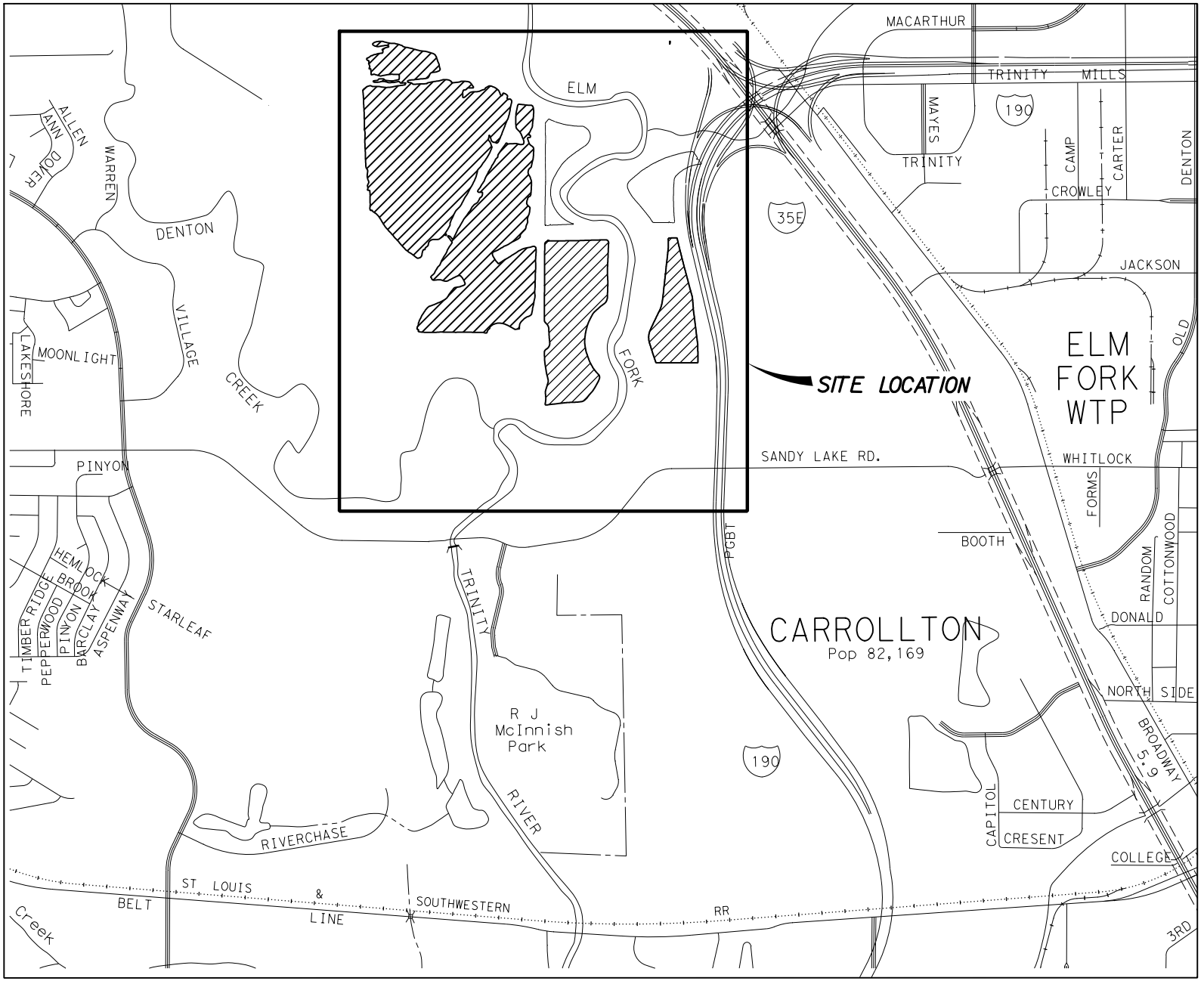
FLOODPLAIN MANAGEMENT: The USACE is sending a copy of this public notice to the local floodplain administrator. In accordance with 44 CFR part 60 (Flood Plain Management Regulations Criteria for Land Management and Use), the floodplain administrators of participating communities are required to review all proposed development to determine if a floodplain development permit is required and maintain records of such review.

SOLICITATION OF COMMENTS: The public notice is being distributed to all known interested persons in order to assist in developing facts upon which a decision by the USACE may be based. For accuracy and completeness of the record, all data in support of or in opposition to the proposed work should be submitted in writing setting forth sufficient detail to furnish a clear understanding of the reasons for support or opposition.

PUBLIC HEARING: Prior to the close of the comment period any person may make a written request for a public hearing setting forth the particular reasons for the request. The District Engineer would determine whether the issues raised are substantial and should be considered in his permit decision. If a public hearing is warranted, all known interested persons would be notified of the time, date, and location.

CLOSE OF COMMENT PERIOD: All comments pertaining to this Public Notice must reach this office on or before July 20, 2012, which is the close of the comment period. Extensions of the comment period may be granted for valid reasons provided a written request is received by the limiting date. If no comments are received by that date, it will be considered that there are no objections. Comments and requests for additional information should be submitted to Mr. Eric Dephouse; Regulatory Branch, CESWF-PER-R; U. S. Army Corps of Engineers; Post Office Box 17300; Fort Worth, Texas 76102-0300. You may visit the Regulatory Branch in Room 3A37 of the Federal Building at 819 Taylor Street in Fort Worth between 8:00 A.M. and 3:30 P.M., Monday through Friday. Telephone inquiries should be directed to (817) 886-1820. Please note that names and addresses of those who submit comments in response to this public notice may be made publicly available.

DISTRICT ENGINEER
FORT WORTH DISTRICT
CORPS OF ENGINEERS



N

N. T. S.

HALFF ASSOCIATES, INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by, or under the supervision of:

James S.R. Goertner	100431	May 2012
Type or Print Name	PE#	Date

TBPE FIRM #F-312

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

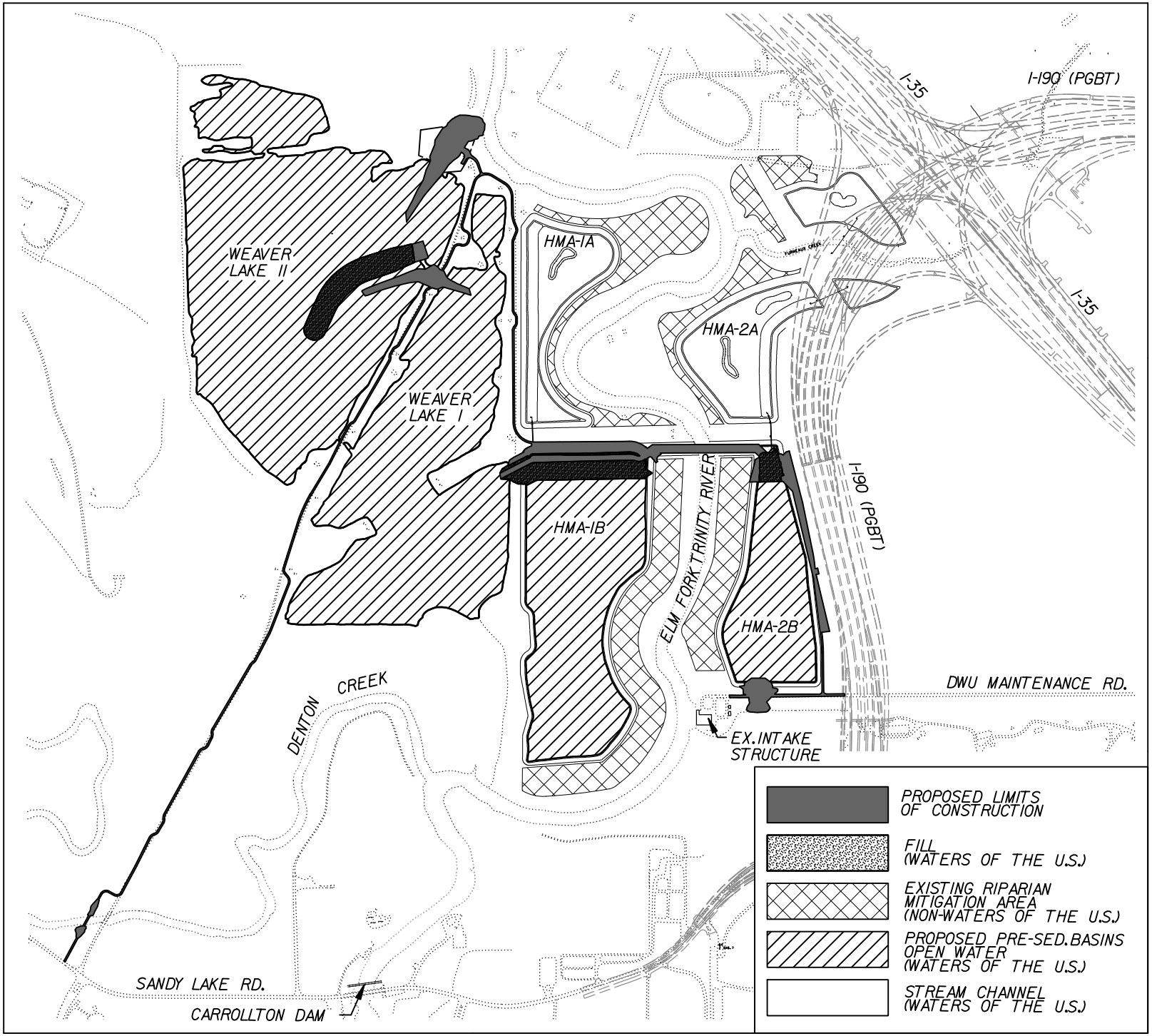
ELM FORK WTP
PRE-SEDIMENTATION BASINS
DALLAS WATER UTILITIES
Carrollton, Texas

Project NO: AVO # 21721		
Issued: May 2012		
Revisions:		
No.	Date	Description
Drawn by:	HALFF	
Checked by:	HALFF	

Sheet Title
PROJECT LOCATION MAP

SHEET 1 OF 16
Sheet Number

$$$$$FILE$$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$



N

0 250 500 750 1000

SCALE IN FEET

HALFF ASSOCIATES, INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by, or under the supervision of:

James S.R. Gaertner	100431	May 2012
Type or Print Name	PE*	Date

TBPE FIRM *F-312

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

ELM FORK WTP PRE-SEDIMENTATION BASINS

DALLAS WATER UTILITIES
Carrollton, Texas

Project NO: AVO # 21721		
Issued: May 2012		
Revisions:		
No.	Date	Description
Drawn by: HALFF		
Checked by: HALFF		

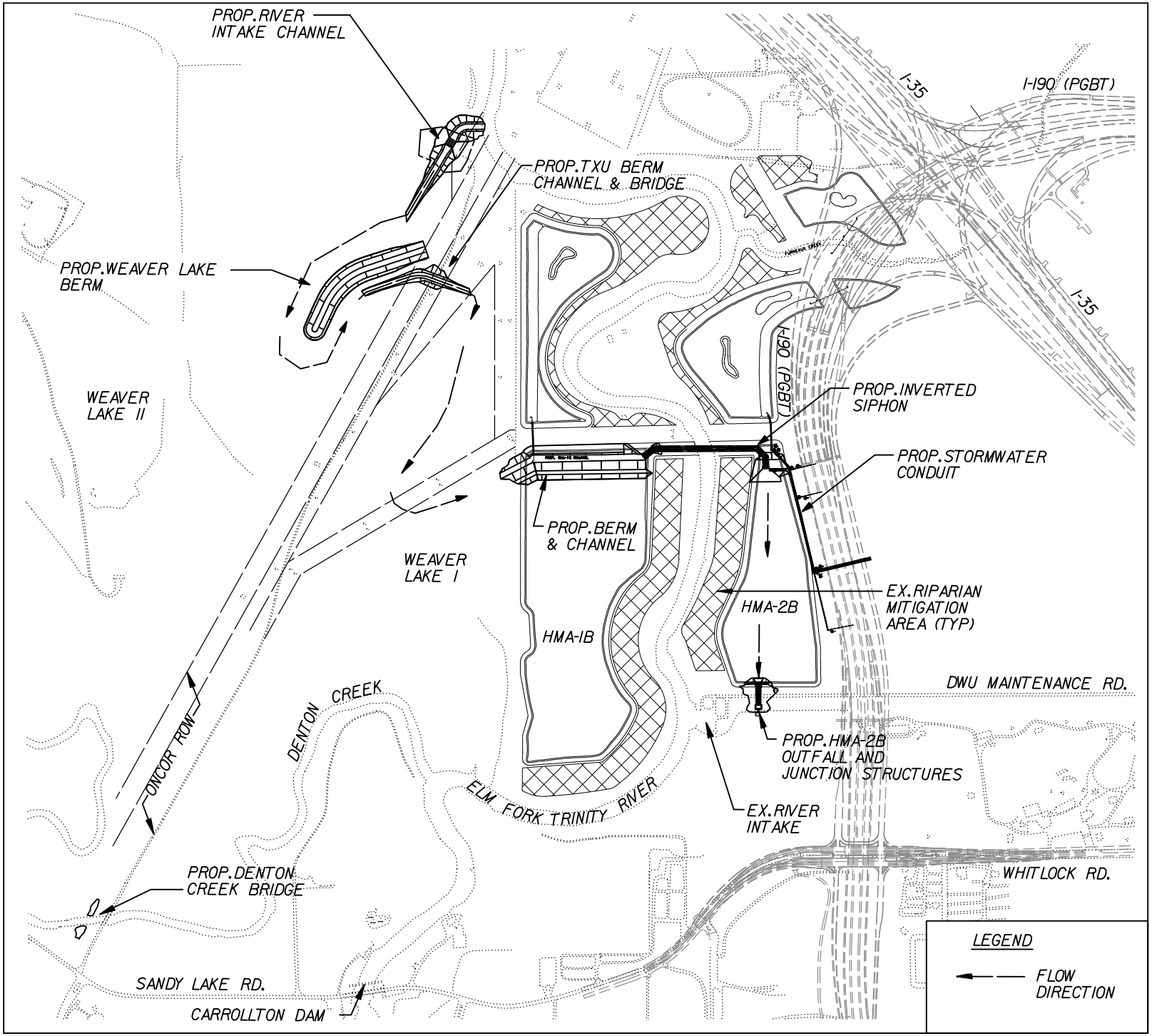
Sheet Title

BASELINE CONDITIONS MAP

SHEET 2 OF 16

Sheet Number

$$$$$FILE$$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$



N

0 250 500 750 1000

SCALE IN FEET

HALFF ASSOCIATES, INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by, or under the supervision of:

James S.R. Gaertner	100431	May 2012
Type or Print Name	PE*	Date

TBPE FIRM *F-312

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

ELM FORK WTP
PRE-SEDIMENTATION BASINS
DALLAS WATER UTILITIES
Carrollton, Texas

Project NO:	AVO # 21721
Issued:	May 2012
Revisions:	

No.	Date	Description

Drawn by:	HALFF
Checked by:	HALFF

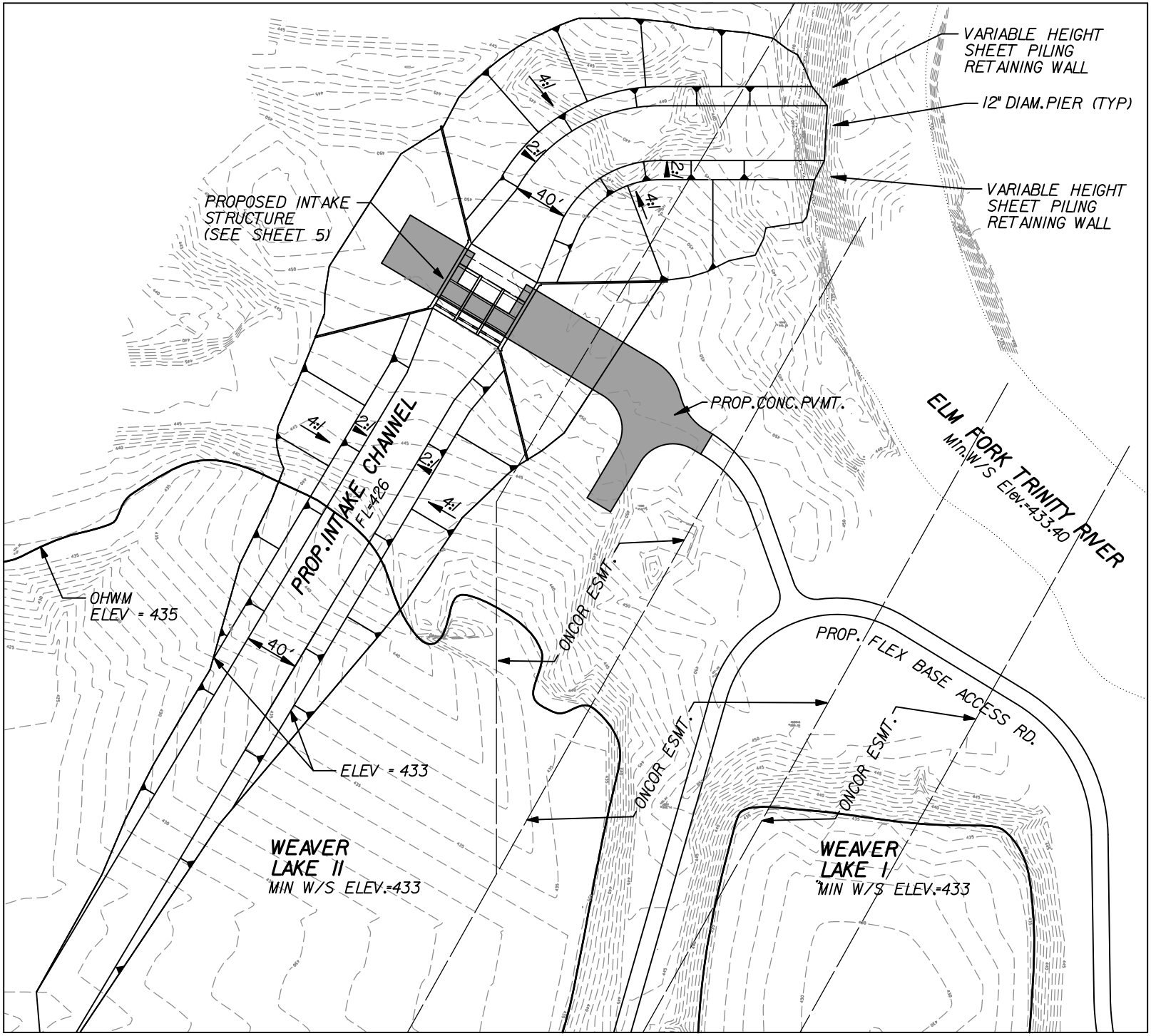
Sheet Title

PROPOSED PROJECT MAP

SHEET 3 OF 16

Sheet Number

$$$$$FILE$$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$



N

0 25 50 75 100

SCALE IN FEET

HALFF ASSOCIATES, INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by, or under the supervision of:

James S.R. Gaertner	100431	May 2012
Type or Print Name	PE*	Date
TBPE FIRM *F-312		

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

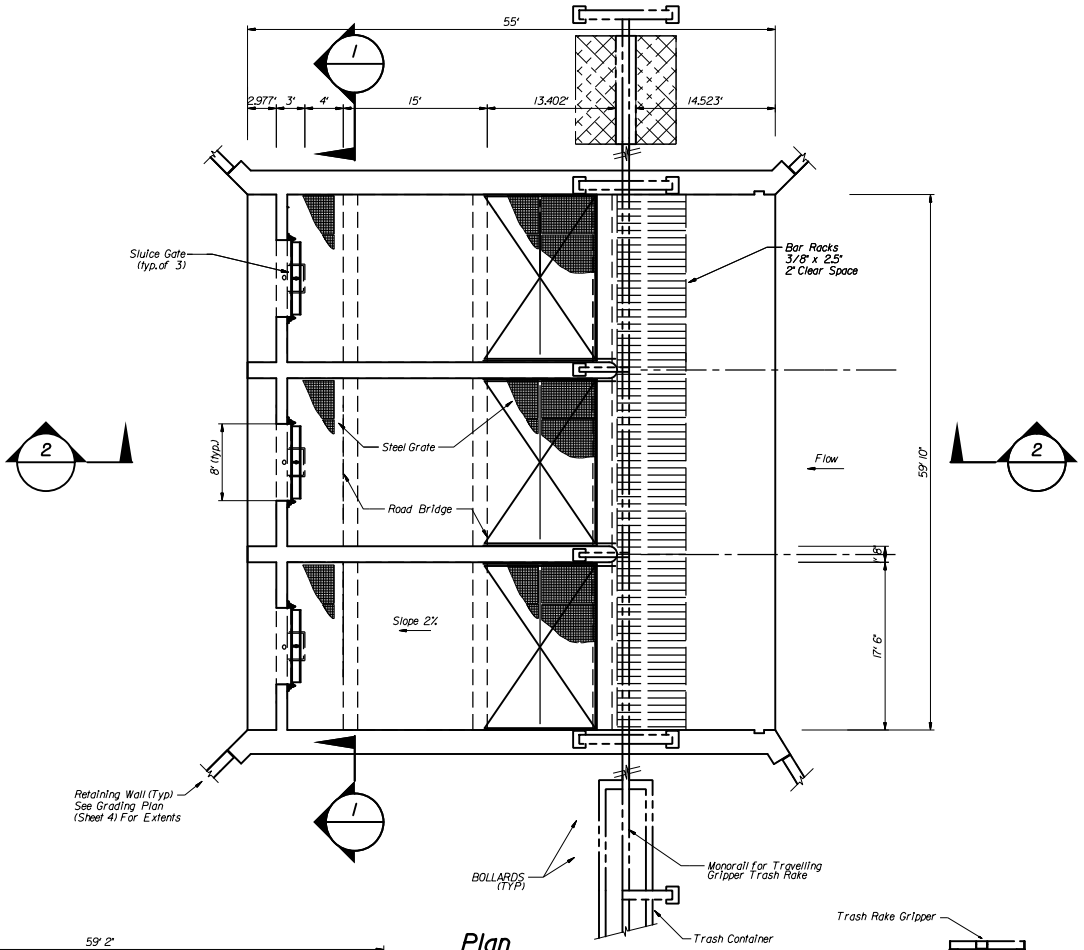
ELM FORK WTP
PRE-SEDIMENTATION BASINS
DALLAS WATER UTILITIES
Carrollton, Texas

Project NO: AVO # 21721		
Issued: May 2012		
Revisions:		
No.	Date	Description
Drawn by: HALFF		
Checked by: HALFF		

Sheet Title
PROPOSED RIVER INTAKE

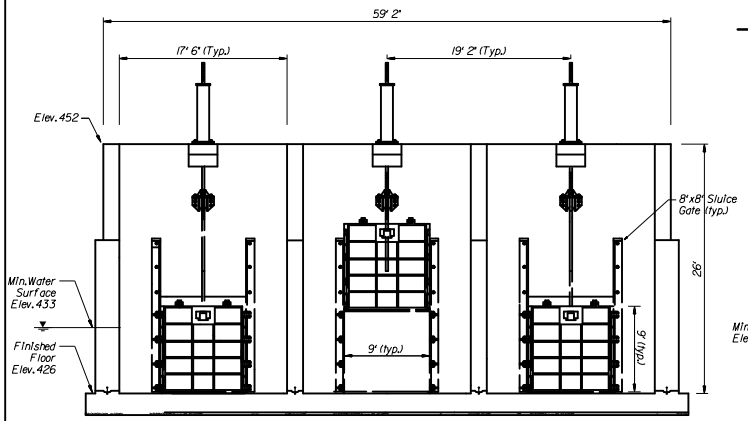
SHEET 4 OF 16
Sheet Number

$$$$$FILE$$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$



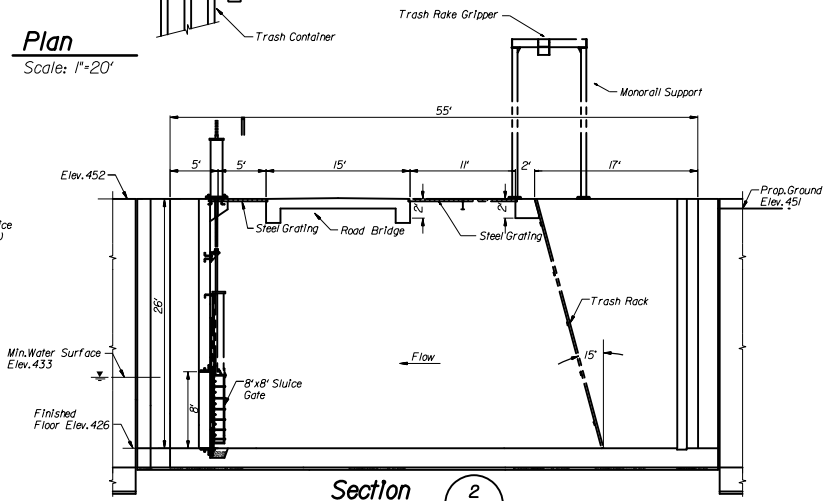
Plan

Scale: 1"=20'



Section 1

Scale 1"=20'



Section 2

Scale 1"=20'

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

ELM FORK WTP
PRE-SEDIMENTATION BASINS
DALLAS WATER UTILITIES
Carrollton, Texas

0 5 10 15 20
SCALE IN FEET

HALFF ASSOCIATES, INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by, or under the supervision of:

James S.R. Gaertner	100431	May 2012
Type or Print Name	PE*	Date

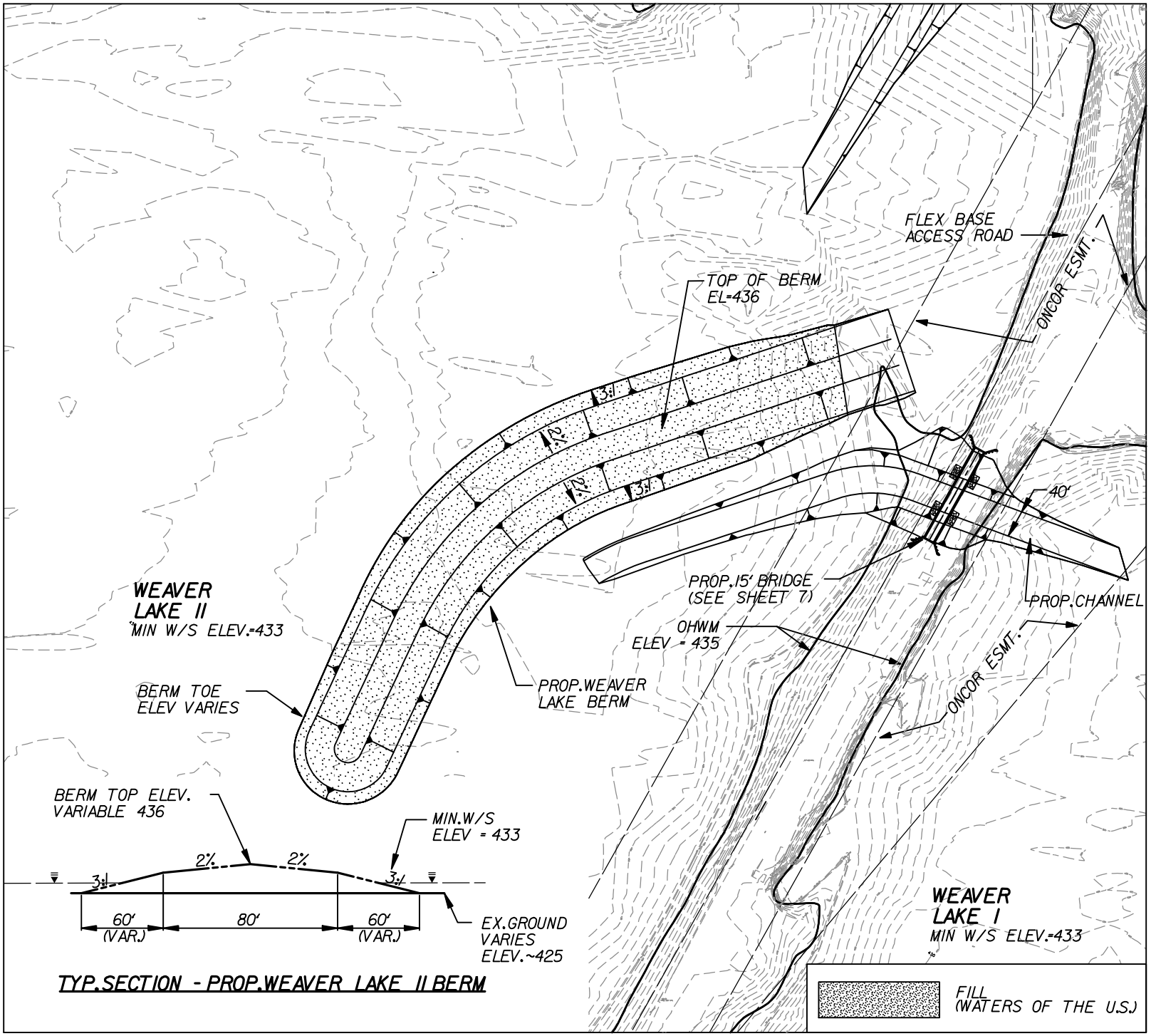
TBPE FIRM *F-312

Project NO: AVO # 21721		
Issued: May 2012		
Revisions:		
No.	Date	Description
Drawn by: HALFF		
Checked by: HALFF		

Sheet Title
PROPOSED RIVER INTAKE STRUCTURE

SHEET 5 OF 16
Sheet Number

$$$$$FILE$$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$



N

0 50 100 150 200

SCALE IN FEET

HALFF ASSOCIATES,INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by,or under the supervision of:

James S.R. Gaertner	100431	May 2012
Type or Print Name	PE*	Date
TBPE FIRM *F-312		

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

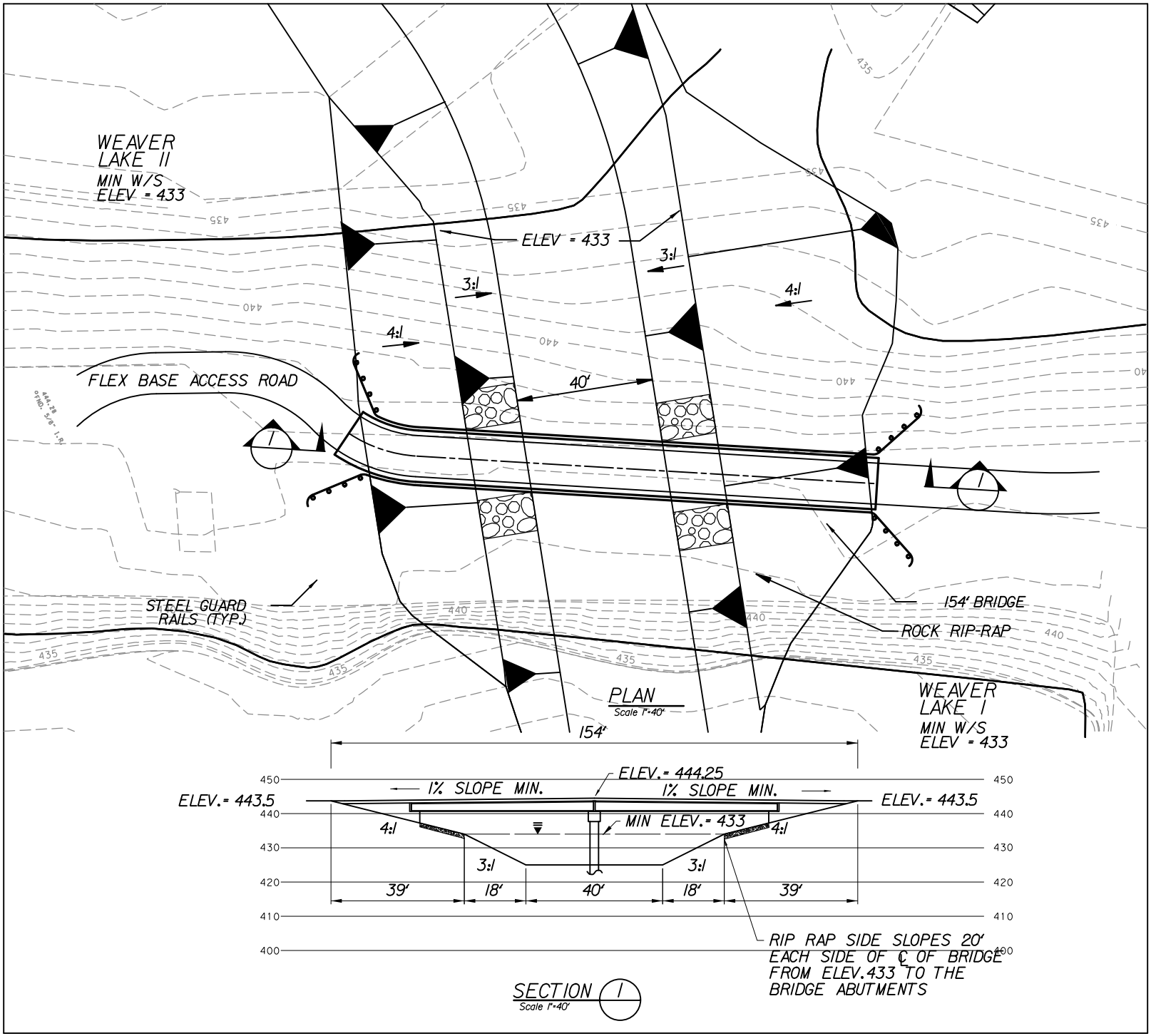
ELM FORK WTP
PRE-SEDIMENTATION BASINS
DALLAS WATER UTILITIES
Carrollton,Texas

Project NO: AVO # 21721		
Issued: May 2012		
Revisions:		
No.	Date	Description
Drawn by: HALFF		
Checked by: HALFF		

Sheet Title
PROPOSED BERM AND CHANNEL

SHEET 6 OF 16
Sheet Number

$$$$$FILE$$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$



0 10 20 30 40
SCALE IN FEET

HALFF ASSOCIATES, INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by, or under the supervision of:

James S.R. Goertner	100431	May 2012
Type or Print Name	PE*	Date

TBPE FIRM *F-312

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

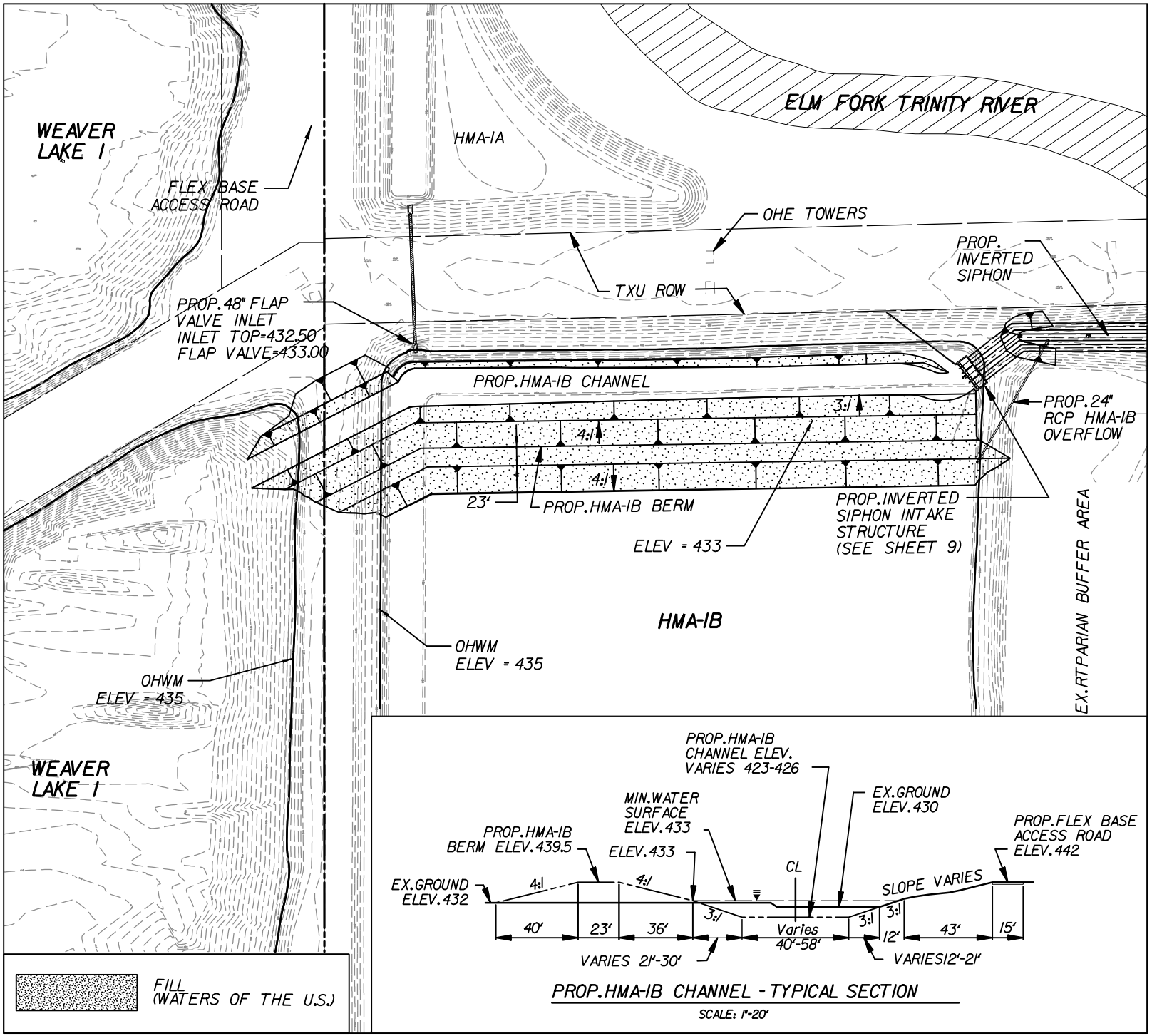
ELM FORK WTP
PRE-SEDIMENTATION BASINS
DALLAS WATER UTILITIES
Carrollton, Texas

Project NO: AVO # 21721		
Issued: May 2012		
Revisions:		
No.	Date	Description
Drawn by: HALFF		
Checked by: HALFF		

Sheet Title
PROPOSED BRIDGE CROSS SECTION

SHEET 7 OF 16
Sheet Number

$$$$$FILE$$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$



PROP. HMA-IB CHANNEL - TYPICAL SECTION

SCALE: 1"=20'

N

0 50 100 150 200

SCALE IN FEET

HALFF ASSOCIATES, INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by, or under the supervision of:

James S.R. Gaertner	100431	May 2012
Type or Print Name	PE*	Date

TBPE FIRM *F-312

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

ELM FORK WTP PRE-SEDIMENTATION BASINS

DALLAS WATER UTILITIES
Carrollton, Texas

Project NO:	AVO # 21721
Issued:	May 2012
Revisions:	

No.	Date	Description

Drawn by:	HALFF
Checked by:	HALFF

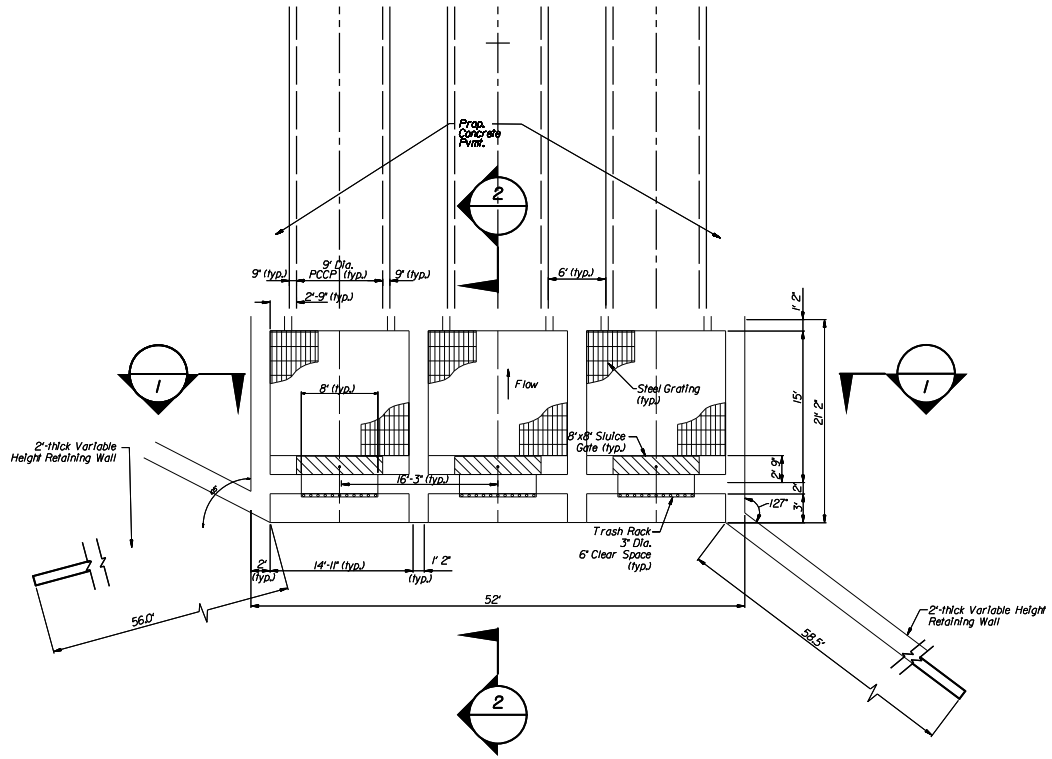
Sheet Title

HMA-IA CHANNEL AND BERM

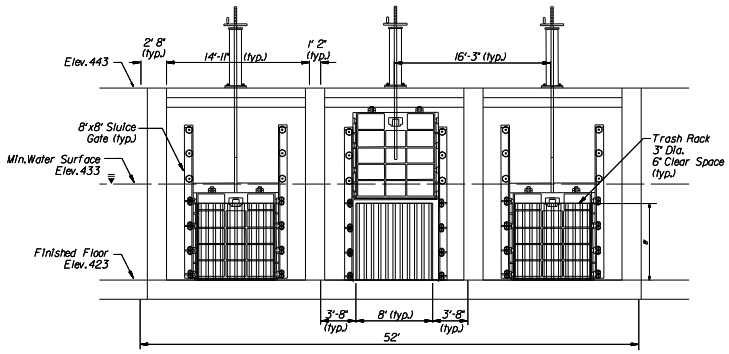
SHEET 8 OF 16

Sheet Number

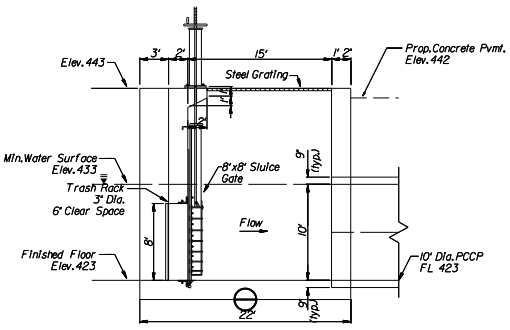
$$$$$FILE$$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$



Plan
Scale: 1"=20'



1 - Section
Scale 1"=20'



2 - Section
Scale 1"=20'

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

ELM FORK WTP
PRE-SEDIMENTATION BASINS
DALLAS WATER UTILITIES
Carrollton, Texas

0 5 10 15 20
SCALE IN FEET

HALFF ASSOCIATES, INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by, or under the supervision of:

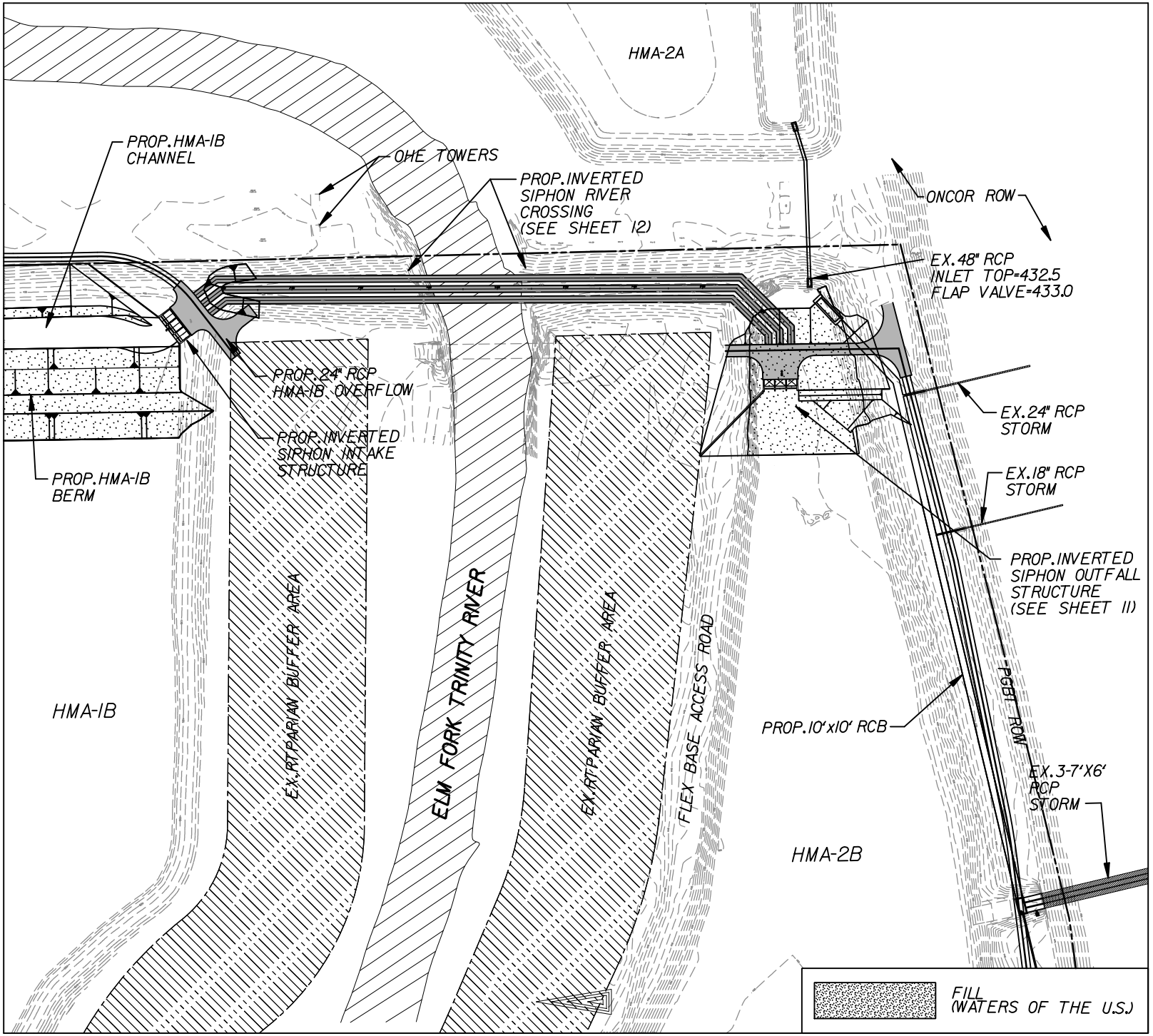
James S.R. Gaertner	100431	May 2012
Type or Print Name	PE*	Date
TBPE FIRM *F-312		

Project NO: AVO # 21721		
Issued: May 2012		
Revisions:		
No.	Date	Description
Drawn by: HALFF		
Checked by: HALFF		

Sheet Title
INVERTED SIPHON INTAKE STRUCTURE

SHEET 9 OF 16
Sheet Number

$$$$$FILE$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$



N

0 50 100 150 200

SCALE IN FEET

HALFF ASSOCIATES,INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by,or under the supervision of:

James S.R. Goertner	100431	May 2012
Type or Print Name	PE*	Date
TBPE FIRM *F-312		

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214)572-2273

ELM FORK WTP PRE-SEDIMENTATION BASINS

DALLAS WATER UTILITIES
Carrollton,Texas

Project NO: AVO # 21721		
Issued: May 2012		
Revisions:		
No.	Date	Description
Drawn by: HALFF		
Checked by: HALFF		

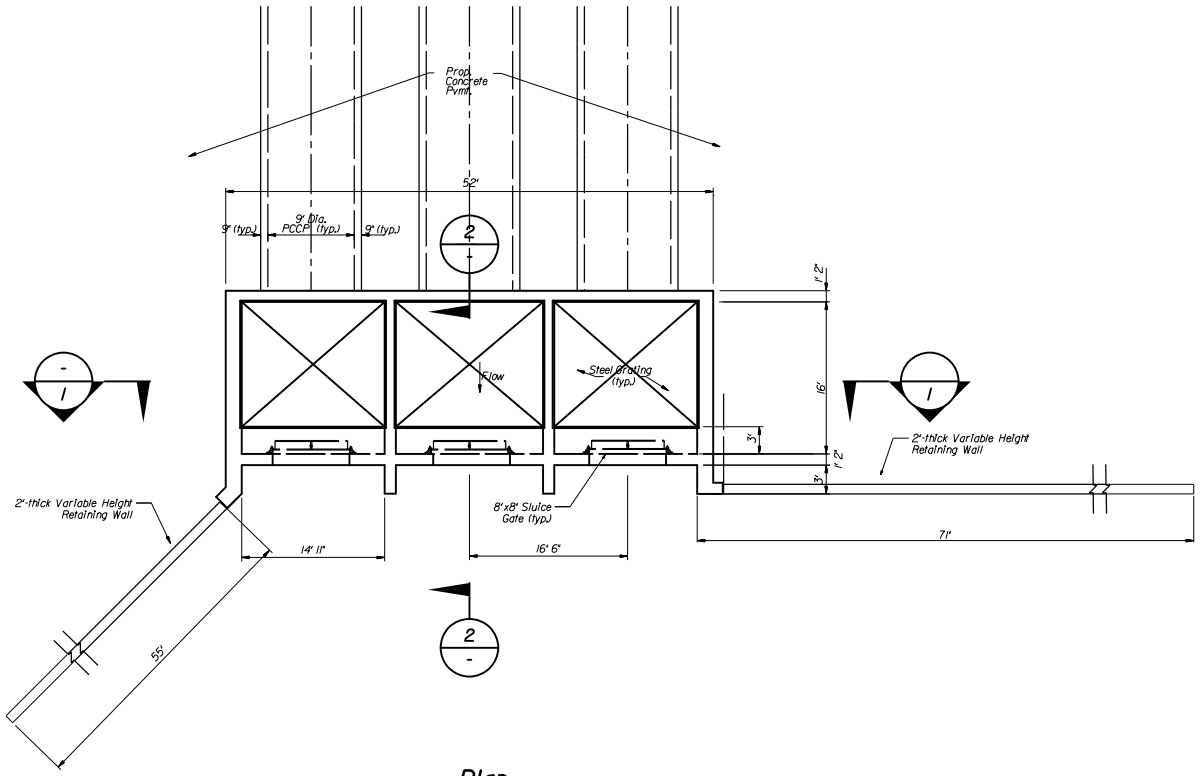
Sheet Title

PPROPOSED INVERT SIPHON

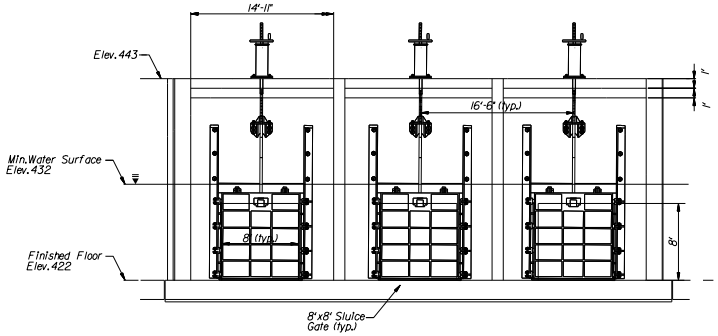
SHEET 10 OF 16

Sheet Number

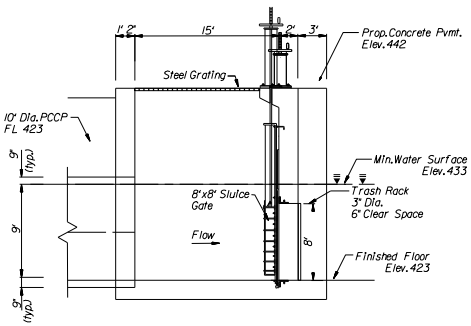
$$$$$FILE$$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$



Plan
Scale: 1"=20'



1 / - Section
Scale: 1"=20'



2 / - Section
Scale: 1"=20'

N

0 5 10 15 20
SCALE IN FEET

HALFF ASSOCIATES, INC.
ENGINEERS - SURVEYORS - SCIENTISTS

PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by, or under the supervision of:

James S.R. Gaertner	100431	May 2012
Type or Print Name	PE*	Date
TBPE FIRM *F-312		

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

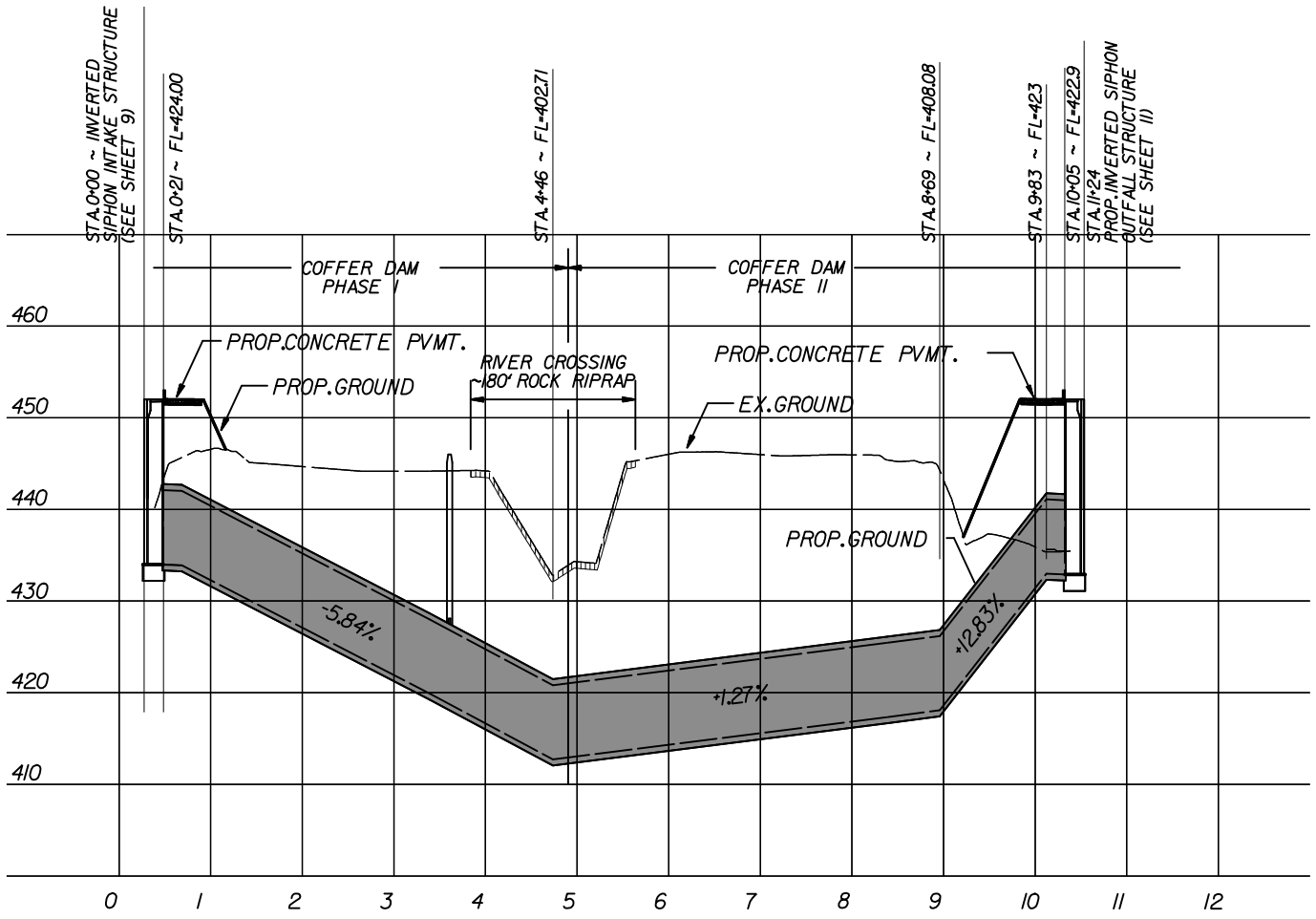
ELM FORK WTP
PRE-SEDIMENTATION BASINS
DALLAS WATER UTILITIES
Carrollton, Texas

Project NO: AVO # 21721		
Issued: May 2012		
Revisions:		
No.	Date	Description
Drawn by: HALFF		
Checked by: HALFF		

Sheet Title
INVERTED SIPHON OUTFALL STRUCTURE

SHEET 11 OF 16
Sheet Number

$$$$$FILE$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$



N

0 50 100 150 200

SCALE IN FEET

HALFF ASSOCIATES, INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by, or under the supervision of:

James S.R. Goertner	100431	May 2012
Type or Print Name	PE#	Date
TBPE FIRM #F-312		

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

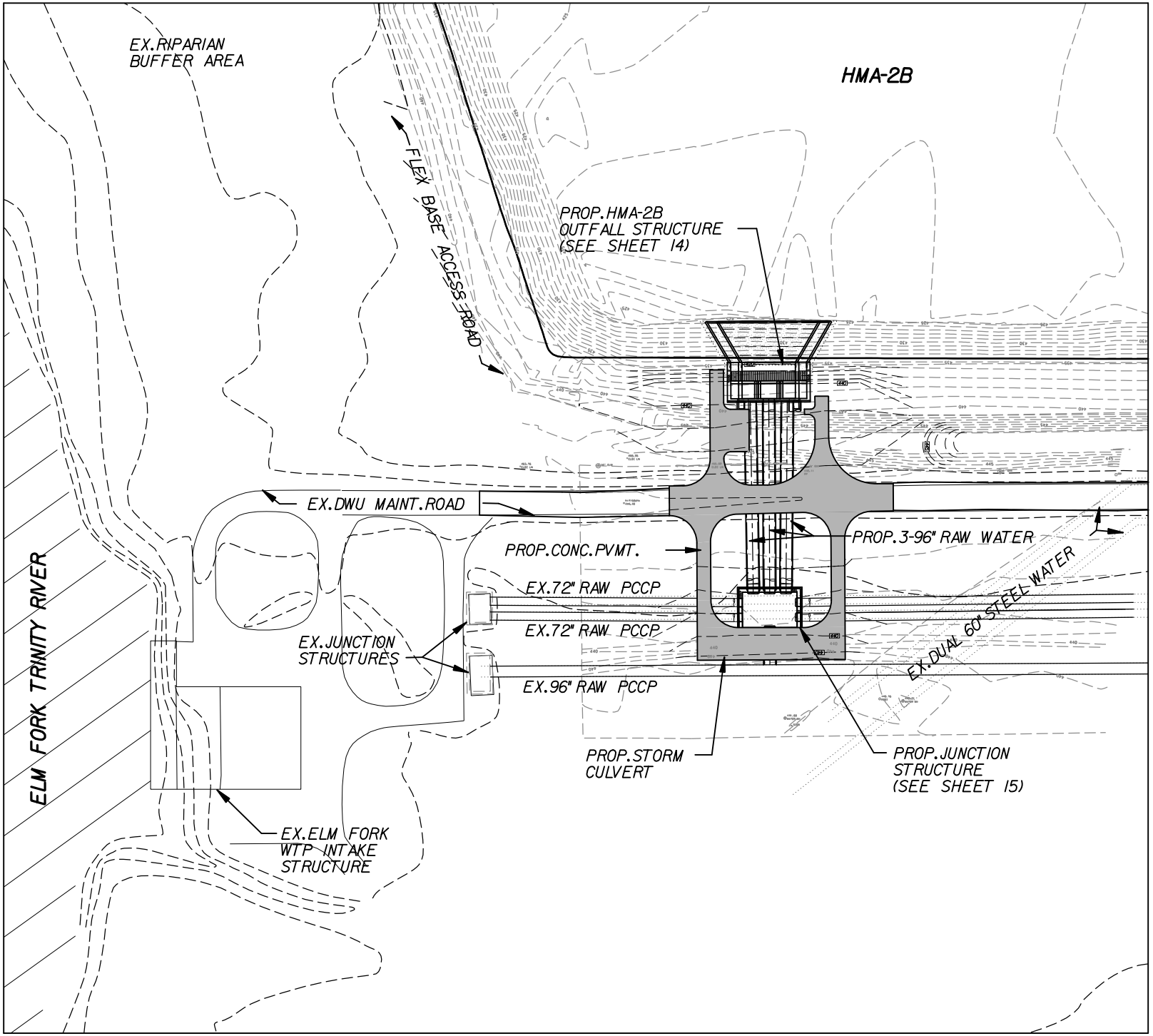
ELM FORK WTP
PRE-SEDIMENTATION BASINS
DALLAS WATER UTILITIES
Carrollton, Texas

Project NO: AVO # 21721		
Issued: May 2012		
Revisions:		
No.	Date	Description
Drawn by: HALFF		
Checked by: HALFF		

Sheet Title
PROPOSED INVERT SIPHON PROFILE

SHEET 12 OF 16
Sheet Number

$$$$$FILE$$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$



N

0 25 50 75 100

SCALE IN FEET

HALFF ASSOCIATES,INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by,or under the supervision of:

James S.R. Gaertner	100431	May 2012
Type or Print Name	PE*	Date

TBPE FIRM *F-312

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

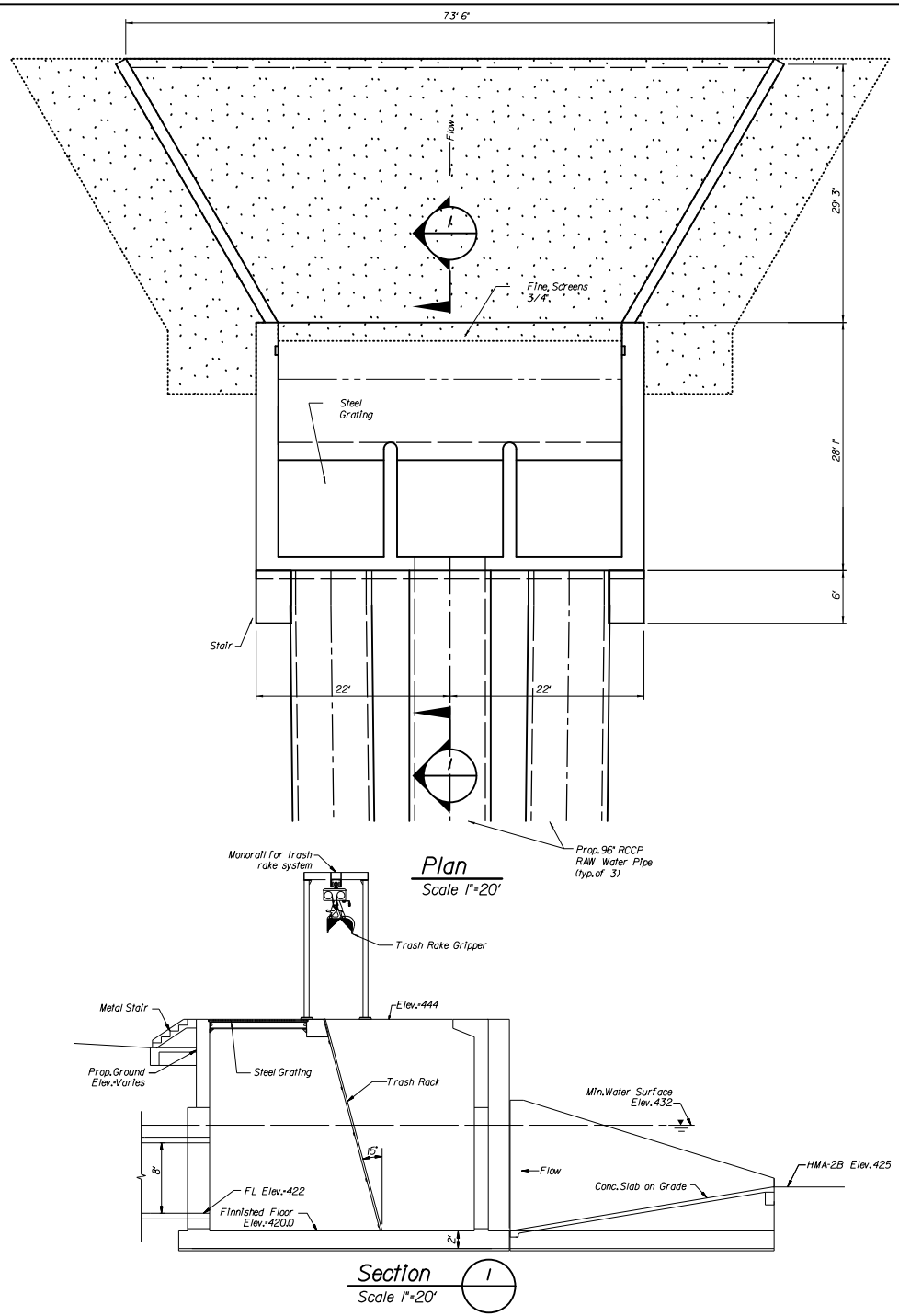
ELM FORK WTP
PRE-SEDIMENTATION BASINS
DALLAS WATER UTILITIES
Carrollton,Texas

Project NO: AVO # 21721		
Issued: May 2012		
Revisions:		
No.	Date	Description
Drawn by: HALFF		
Checked by: HALFF		

Sheet Title
HMA-2B OUTFALL & JUNCTION STRUC.

SHEET 13 OF 16
Sheet Number

$$$$$FILE$$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$



N

0 5 10 15 20

SCALE IN FEET

HALFF ASSOCIATES, INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by, or under the supervision of:

James S.R. Gaertner	100431	May 2012
Type or Print Name	PE*	Date

TBPE FIRM *F-312

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

ELM FORK WTP
PRE-SEDIMENTATION BASINS
DALLAS WATER UTILITIES
Carrollton, Texas

Project NO: AVO # 21721		
Issued: May 2012		
Revisions:		
No.	Date	Description
Drawn by: HALFF		
Checked by: HALFF		

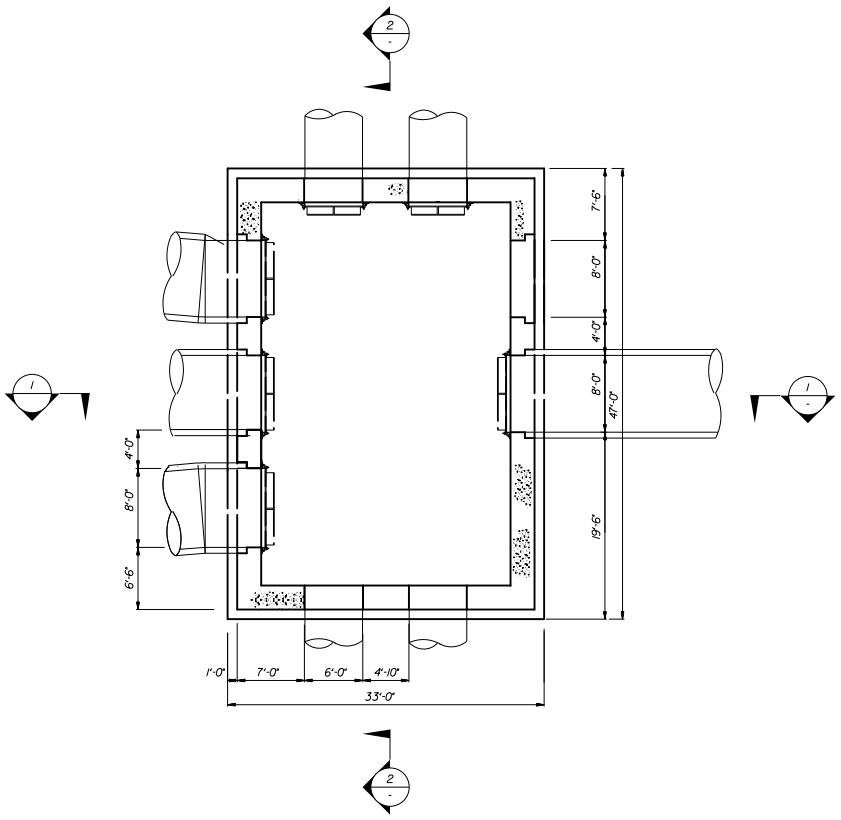
Sheet Title

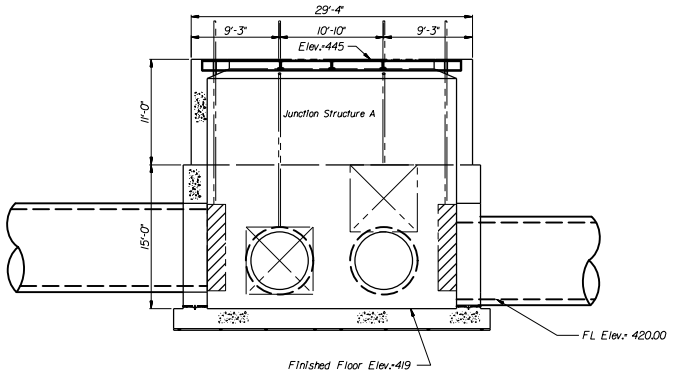
HMA-2B OUTFALL STRUCTURE

SHEET 14 OF 16

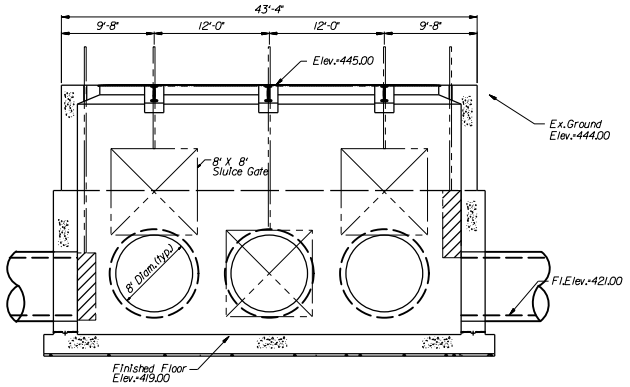
Sheet Number

$$$$$FILE$$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$

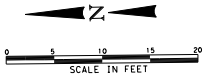




1 Section
Scale 1"=20'



Section 2
Scale 1"=20'



HALFF ASSOCIATES, INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by, or under the supervision of:

James S.R. Gaertner	100431	May 2012
Type or Print Name	PE*	Date
TBPE FIRM *F-312		

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

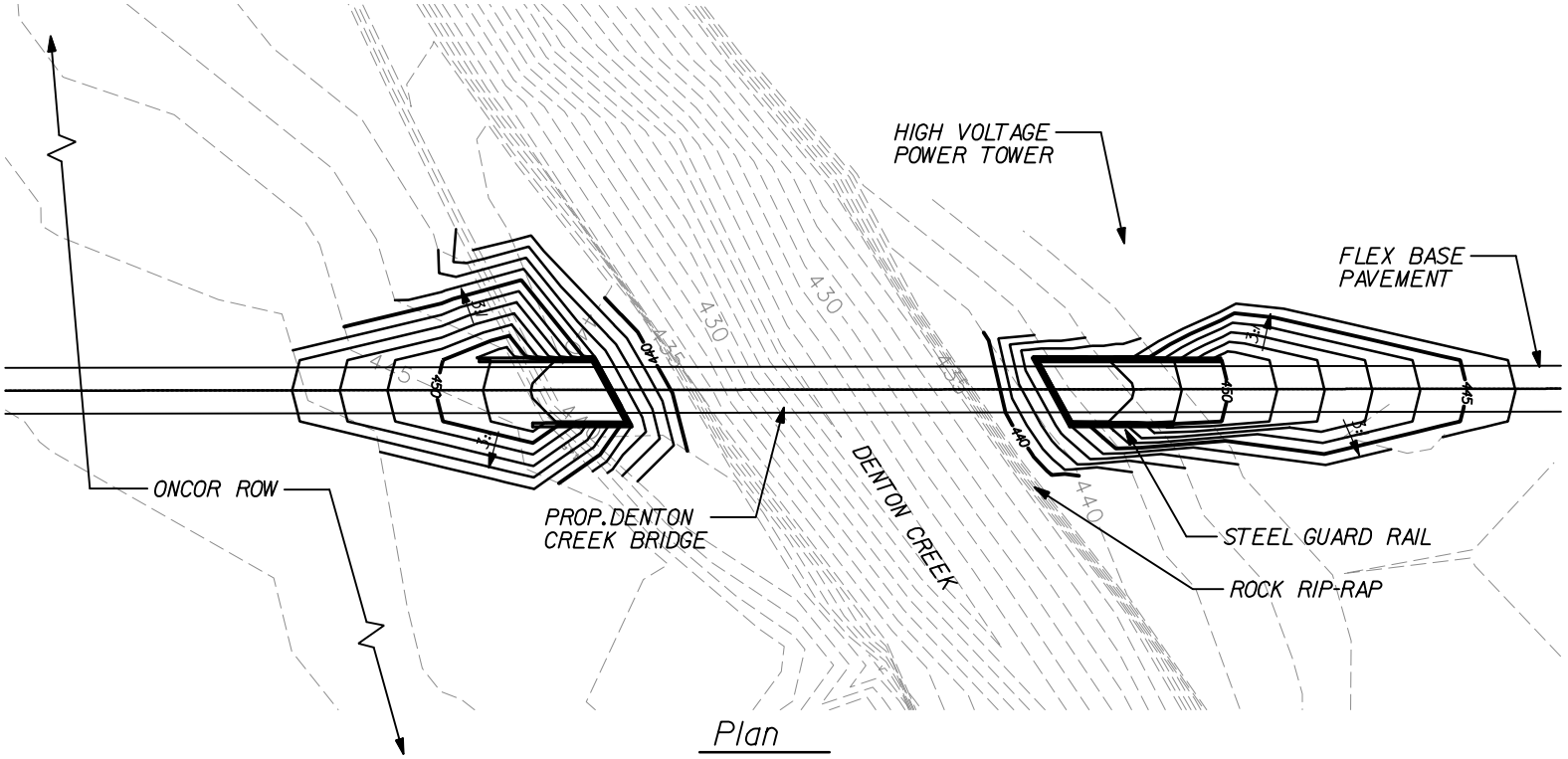
ELM FORK WTP
PRE-SEDIMENTATION BASINS
DALLAS WATER UTILITIES
Carrollton, Texas

Project NO: AVO # 21721		
Issued: May 2012		
Revisions:		
No.	Date	Description
Drawn by:	HALFF	
Checked by:	HALFF	

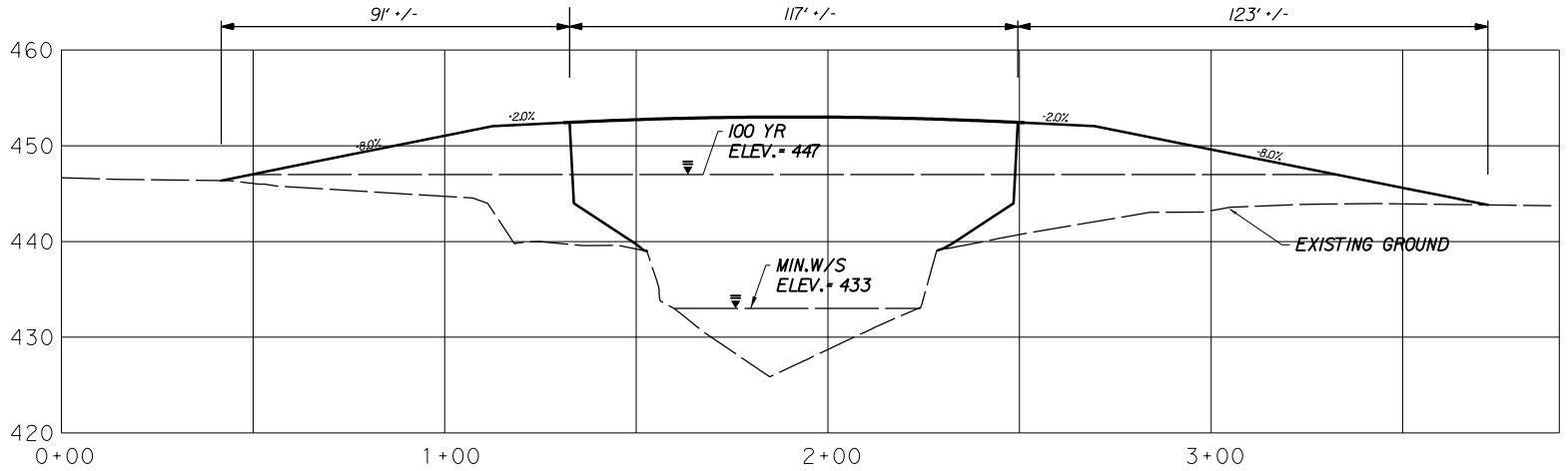
Sheet Title
JUNCTION STRUCTURES

SHEET 15 OF 16
Sheet Number

$$$$$FILE$$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$



Plan
Scale 1"=50'



Section 1
Scale H: 1"=50'
V: 1"=20'

N

0 25 50
SCALE IN FEET

HALFF ASSOCIATES, INC.
ENGINEERS - SURVEYORS - SCIENTISTS
PRELIMINARY - FOR INTERIM REVIEW ONLY

These documents are for Interim Review and Permit purposes and are not intended for Construction or Bidding. They were prepared by, or under the supervision of:

James S.R. Gaertner	100431	May 2012
Type or Print Name	PE#	Date
TBPE FIRM #F-312		

HALFF
12225 GREENVILLE AVE, SUITE #200
DALLAS, TEXAS 75243-9362
TEL (214) 572-2272
FAX (214) 572-2273

ELM FORK WTP
PRE-SEDIMENTATION BASINS
DALLAS WATER UTILITIES
Carrollton, Texas

Project NO: AVO # 21721		
Issued: May 2012		
Revisions:		
No.	Date	Description
Drawn by: HALFF		
Checked by: HALFF		

Sheet Title
PROPOSED DENTON CREEK BRIDGE

SHEET 16 OF 16
Sheet Number

$$$$$FILE$$$$$$$DATE$$$ $$$TIME$$$
Standard: $$PROJECT$$