



Prepared for

DTE Electric Company
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HISTORY OF CONSTRUCTION REPORT
2021 UPDATE
MONROE POWER PLANT FLY ASH BASIN
Monroe, Michigan

Prepared by

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Project Number CHE8242

October 2021

EXECUTIVE SUMMARY

Monroe Power Plant (Plant) is a 3,300-megawatt coal-fired power plant owned and operated by DTE Electric Company (DTE). The Plant is in Monroe, MI, and is located by Lake Erie. Part of the coal combustion residuals generated at the Plant are disposed of at the Monroe Power Plant Fly Ash Basin (FAB). The FAB is located about one mile southwest of the Plant and bounded on the east by Lake Erie and the Plant's discharge canal, on the west by Interstate Highway 75 (I-75), on the south by an agricultural field, and on the north by residential property and Plum Creek.

On April 17, 2015, the United States Environment Protection Agency (EPA) published the Final Rule for the Disposal of Coal Combustion Residuals (CCR) from Electric Utilities (the Rule). The Rule section §257.73(c)(1) requires the owner of existing CCR surface impoundments to compile a history of construction containing available information pertaining to the location, purpose, design, construction, and maintenance of the unit.

The purpose of this report is to provide the information required by the Rule.

The original report was dated October 2016. Since that date, modifications to the FAB embankment were made. Therefore, this report was revised accordingly to provide updated information.

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1. INTRODUCTION

This report is provided in response to the Coal Combustion Residual (CCR) Rule (40 Code of Federal Regulations (CFR) Part 257) (the “Rule”). Section §257.73(c)(1) of the CCR Rule states that *“No later than October 17, 2016, the owner or operator of the CCR unit must compile a history of construction, which shall contain, to the extent feasible, the information specified in paragraphs (c)(1)(i) through (xii) of this section.”*

DTE Electric Company (DTE) retained Geosyntec Consultants, Inc. (Geosyntec) to prepare the required history of construction documentation for the Monroe Power Plant Fly Ash Basin (FAB). Four coal-fired generating units are operated at Monroe Power Plant (Plant) with a total generating capacity of 3,300 megawatts. Fly ash generated as part of the coal combustion operations is disposed of at the FAB, along with other approved coal combustion residuals.

This History of Construction Report (Report) is intended to meet the requirements of Part 257.73 (c)(1)(i–xii) of the Rule, by documenting embankment geometry, engineering properties, material parameters, instrumentation, and other required information. The remaining sections of this Report are organized to satisfy specific requirements of the Rule as follows:

Report Section	Regulatory Citation
Section 2 provides owner and CCR unit information.	<i>40 CFR §257.73(c)(1)(i)</i>
Section 3 provides the location of the CCR unit.	<i>40 CFR §257.73(c)(1)(ii)</i>
Section 4 describes the purpose of the CCR unit.	<i>40 CFR §257.73(c)(1)(iii)</i>
Section 5 describes the contributing watersheds.	<i>40 CFR §257.73(c)(1)(iv)</i>
Section 6 describes the physical and engineering properties of foundation materials.	<i>40 CFR §257.73(c)(1)(v)</i>
Section 7 presents construction methods and dates, and physical and engineering properties of materials used.	<i>40 CFR §257.73(c)(1)(vi)</i>
Section 8 provides dimensional drawings.	<i>40 CFR §257.73(c)(1)(vii)</i>
Section 9 describes the existing instrumentation.	<i>40 CFR §257.73(c)(1)(viii)</i>
Section 10 presents the area-capacity curves.	<i>40 CFR §257.73(c)(1)(ix)</i>
Section 11 describes spillway and diversion features.	<i>40 CFR §257.73(c)(1)(x)</i>
Section 12 discusses surveillance, maintenance and repair provisions.	<i>40 CFR §257.73(c)(1)(xi)</i>
Section 13 discusses any record or knowledge of instability.	<i>40 CFR §257.73(c)(1)(xii)</i>
Section 14 provides the sources referenced within this Report.	

2. OWNER AND CCR UNIT INFORMATION

Section §257.73(c)(1)(i) of the CCR Rule requires *“The name and address of the person(s) owning or operating the CCR unit; the name associated with the CCR unit; and identification number of the CCR unit if one has been assigned by the state.”*

The Plant is a coal-fired steam electric generating facility owned and operated by DTE. DTE’s corporate office is located at One Energy Plaza, Detroit, MI 48226.

The FAB is licensed under Michigan Part 115, Solid Waste Management, of the Natural Resources and Environmental Protection Act, 1994, License No. 9579. The FAB is located about one mile southwest of the Plant near Monroe, Michigan, and is bounded on the east by Lake Erie and the Plant’s discharge canal, on the west by Interstate Highway 75 (I-75), on the south by an agricultural field, and on the north by residential property and Plum Creek. The address of the FAB is 7955 East Dunbar Road, Monroe, MI, 48161.

3. UNIT LOCATION

Section §257.73(c)(1)(ii) of the CCR Rule requires *“The location of the CCR unit identified on the most recent U.S. Geological Survey (USGS) 7 ½ minute or 15 minute topographic quadrangle map, or a topographic map of equivalent scale if a USGS map is not available.”*

A map depicting the location of the FAB is identified on a United States Geologic Survey (USGS) 7 ½ minute topographic quadrangle map (USGS, 2014) is presented in Appendix A.

4. PURPOSE

Section §257.73(c)(1)(iii) of the CCR Rule requires “*A statement of purpose for which the CCR unit is being used.*”

The FAB currently receives fly ash generated at the Plant’s coal-fired electric generating units as well as stormwater collected at the toe of the southeast embankment. The purpose of FAB is to contain CCR and treat contact water to meet the requirements of the National Pollutant Discharge Elimination System Permit before discharging into Lake Erie.

5. WATERSHED DESCRIPTIONS

Section §257.73(c)(1)(iv) of the CCR Rule requires *“The name and size in acres of the watershed within which the CCR unit is located.”*

The FAB is encapsulated by an embankment that is up to 46 ft higher than the surrounding ground surface. The perimeter of the embankment defines the outer limits of the watershed, which is the plan area of rainfall. There is no outer watershed area that directly flows into the FAB.

6. FOUNDATION MATERIALS

Section §257.73(c)(1)(v) of the CCR Rule requires “*A description of the physical and engineering properties of the foundation and abutment materials on which the CCR unit is constructed.*”

The native soil profile (from the original preconstruction ground surface down) is generally comprised of approximately one foot of clayey topsoil, underlain by approximately 30 to 50 ft of silty clay that generally gets stiffer with depth, and is underlain by the Bass Island Dolomite Series bedrock. Based on visual observations of samples obtained from field investigation studies, and laboratory test results, the native soil is predominantly characterized as low plasticity silty clay with some sand and trace amount of gravel.

The average drained shear strength of the “undisturbed” native soil was interpreted as 37 degrees friction angle with the cohesion of 90 psf. The undrained shear strength of the native soil is interpreted to be constant 750 psf up to 1,500 psf of effective consolidation stress and then increase at a rate of 0.8. The permeability of the native soil is approximately 3×10^{-8} cm/s.

The bedrock underlying the native clayey soil is characterized primarily as dolomite with occasional interbedded shale partings and characterized secondarily as weathered shale with occasional silt and sand layers, limestone, and sandstone. The bedrock belongs to Bass Island Dolomite Series from the late Silurian Period (~420 million years age-old) (Milstein, 1987) and is approximately 200-ft thick.

7. PHYSICAL AND ENGINEERING MATERIAL PROPERTIES AND CONSTRUCTION METHODS AND DATES

Section §257.73(c)(1)(vi) of the CCR Rule requires “*A statement of the type, size, range, and physical and engineering properties of the materials used in constructing each zone or stage of the CCR unit; the method of site preparation and construction of each zone of the CCR unit; and the approximate dates of construction of each successive stage of construction of the CCR unit.*”

The FAB was originally constructed from 1973 to 1974. The embankment encapsulating the FAB was originally constructed with 2 Horizontal and 1 Vertical (2H:1V) side slopes up to 45 ft high. The FAB is a portion of a 410 acre permitted area that contains the 331 acre FAB and a 79-acre vertical extension dry landfill.

The embankment exhibited surficial sloughs on the exterior slopes over the years. DTE mitigated the embankment from 2009 to 2013; and as part of the mitigation program, approximately 60 percent of the embankment was flattened to a grade ranging from 2.35H:1V to 2.5H:1V. In 2017 and 2019, additional parts of the embankment were flattened as follows:

- approximately 750-ft long of the embankment along the north side was flattened from 2H:1V to 3H:1V;
- approximately 1,000-ft long of the embankment along the east side was flattened from 2H:1V to 3H:1V; and
- approximately 2,900-ft long of the embankment along the south side was flattened from 2H:1V to 3H:1V.

Including the past construction seasons, and construction activities from 2017 and 2019, a total of approximately 85 percent of the embankment has been flattened.

The clay fill for the original embankment was obtained by excavating approximately 10 ft of the native ground inside the footprint of the FAB. The clay fill was compacted to a dry density that is at a minimum 95 percent of the maximum dry density determined in accordance with ASTM D-1557 (modified Proctor) and to a moisture content that is within the range of one percent above and two percent below the optimum moisture content as determined in accordance with ASTM D-1557. The flattened portion of the embankment that was constructed from 2009 to 2019 was compacted with similar compaction requirements of clay that was obtained from a local borrow source.

The embankment is predominantly characterized as low plasticity silty clay (CL) with some sand and trace amount of gravel based on visual observations of samples obtained from field investigation studies and laboratory test results. The grain size distribution of samples obtained from the embankment ranged from 0.1 to 13 percent gravel, 8 to 36 percent sand, and 54 to 92 percent fines (passing a 0.075 mm/No. 200 sieve). Based on hydrometer test results, the silt content is from 33 to 40 percent, and clay content was from 38 to 50 percent. Liquid limit (LL) values ranged from 10 to 48 percent, and plasticity indices (PI) ranged from 6 to 29 percent.

The Standard Penetration Test (ASTM D15887) SPT N values of the embankment ranged from 5 to 40 with a generally increasing trend with depth. Results indicate that the majority of the embankment is characterized as stiff to very stiff. Water content in the embankment ranged from 8 to 26 percent with higher values usually corresponding to soils closer to the surface.

The average drained shear strength (friction angle) of the embankment was interpreted as 34 degrees with a cohesion of 165 psf. The undrained shear strength of the native soil was interpreted to be constant 750 psf up to 1,500 psf of effective consolidation stress and then increased at a rate of 0.8. The permeability of the embankment ranged from approximately 1×10^{-8} cm/s to 6×10^{-9} cm/s.

8. DIMENSIONAL DRAWINGS

Section §257.73(c)(1)(vii) of the CCR Rule states *“At a scale that details engineering structures and appurtenances relevant to the design, construction, operation, and maintenance of the CCR unit, detailed dimensional drawings of the CCR unit, including a plan view and cross sections of the length and width of the CCR unit, showing all zones, foundation improvements, drainage provisions, spillways, diversion ditches, outlets, instrument locations, and slope protection, in addition to the normal operating pool surface elevation and the maximum pool surface elevation following peak discharge from the inflow design flood, the expected maximum depth of CCR within the CCR surface impoundment, and any identifiable natural or manmade features that could adversely affect operation of the CCR unit due to malfunction or mis-operation.”*

This section of the Report documents information related to the design, construction, operation, and maintenance of the FAB on dimensional drawings, to the extent this information is available.

Operations Plan Drawings provided in Appendix B provide information on the existing conditions, construction, design, operations, instrumentation monitoring, and maintenance of the FAB. Additional drawings are provided in Appendix C that depicts cross-sectional views of the embankment.

9. EXISTING INSTRUMENTATION

Section §257.73(c)(1)(viii) of the CCR Rule states “*A description of the type, purpose, and location of existing instrumentation.*”

Two types of instruments have been installed at the FAB; one type of instrument to monitor embankment movements and another type of instrument to measure water level by the discharge structure.

There are 10 shape accelerator array (SAA) inclinometers installed around the perimeter of the embankment. SAA inclinometers are installed from the embankment crest to a depth of a minimum of 10 ft below the toe of the embankment. The embankment movement is monitored at a set frequency (approximately every six hours) and data is uploaded to a cloud-based storage system for continuous monitoring data. The locations of the SAA inclinometers are provided in the Operations Plan Drawings provided in Appendix B.

There is a staff gauge installed at the discharge structure to measure surface impoundment water elevation.

10. AREA-CAPACITY CURVES

Section §257.73(c)(1)(ix) of the CCR Rule states “*Area-Capacity curves for the CCR unit*” and “*to the extent feasible*” per Section §257.73(c)(1).

The remaining FAB capacity is approximately 1.7 million cubic yards and it is based on the bathymetry survey conducted in May 2021.

11. SPILLWAY AND DIVERSION FEATURES

Section §257.73(c)(1)(x) of the CCR Rule states *“A description of each spillway and diversion design features and capacities and calculations used in their determination.”*

The water level in the FAB is maintained with a discharge structure, which also acts as a “spillway”. The discharge structure is constructed out of steel sheet piles, wales, struts, wooden stoplogs, and concrete. The drawing provided in Appendix D provides details of the discharge structure.

The discharge structure can manage the probable maximum flood without overtopping the embankment. Hydraulic capacity analyses are provided in a letter report titled “Hydraulic Capacity Assessment” and dated October 15, 2021.

12. CONSTRUCTION SPECIFICATIONS, SURVEILLANCE, MAINTENANCE, AND REPAIR PROVISIONS

Section §257.73(c)(1)(xi) of the CCR Rule states *“The construction specifications and provisions for surveillance, maintenance, and repair of the CCR unit.”*

The excerpt below from a historical document provides information on construction specifications used for the original FAB embankment. Specifications used for the 2009-2019 construction season were similar to the original specifications.

“Embankments were to be constructed with clay-silt materials from the site with the existing moisture modified as needed to meet the requirements of the Specification.

The reference test for compaction requirements, optimum moisture, and dry unit weight, was AASHTO Test T-180 (ASTM D-1557).

Materials from the site suitable for construction were defined as those which would produce a maximum dry unit weight of at least 112 pounds per cubic foot, have a liquid limit no less than 25 percent, and with a soil fraction finer than 0.005 mm of no less than 35 percent by dry weight.

These suitable materials were to be compacted to at least 95% of maximum dry unit weight while maintaining a moisture content of no more than one percent (1%) above and no less than two percent (2%) below the optimum moisture content.”

DTE conducts periodic surveillance and maintenance for the FAB in accordance with the FAB Inspection, Monitoring, and Maintenance Manual.

13. RECORD OF STRUCTURAL INSTABILITY

Section §257.73(c)(1)(xii) of the CCR Rule states “*Any record of knowledge of structural instability of the CCR unit.*”

DTE personnel were questioned to identify historical information that could have been indicative of structural instability. DTE revealed that there are no records or knowledge of structural instability associated with the FAB.

APPENDICES

APPENDIX A

USGS TOPOGRAPHIC MAPS FOR MONROE ASH BASIN



Produced by the United States Geological Survey North American Datum of 1983 (NAD83) World Geodetic System of 1984 (WGS84) Projection and 1 000-meter grid: Universal Transverse Mercator, Zone 17T 10 000-foot ticks: Michigan Coordinate System of 1983 (south zone)

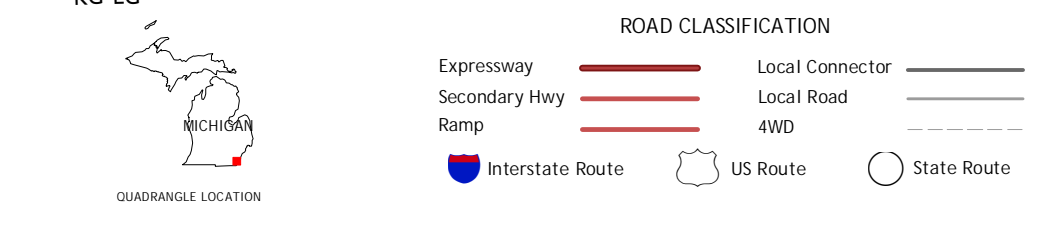
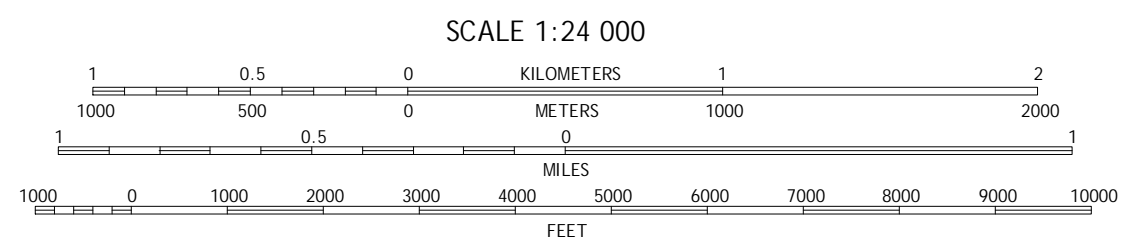
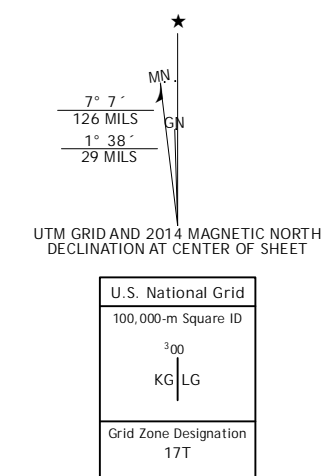
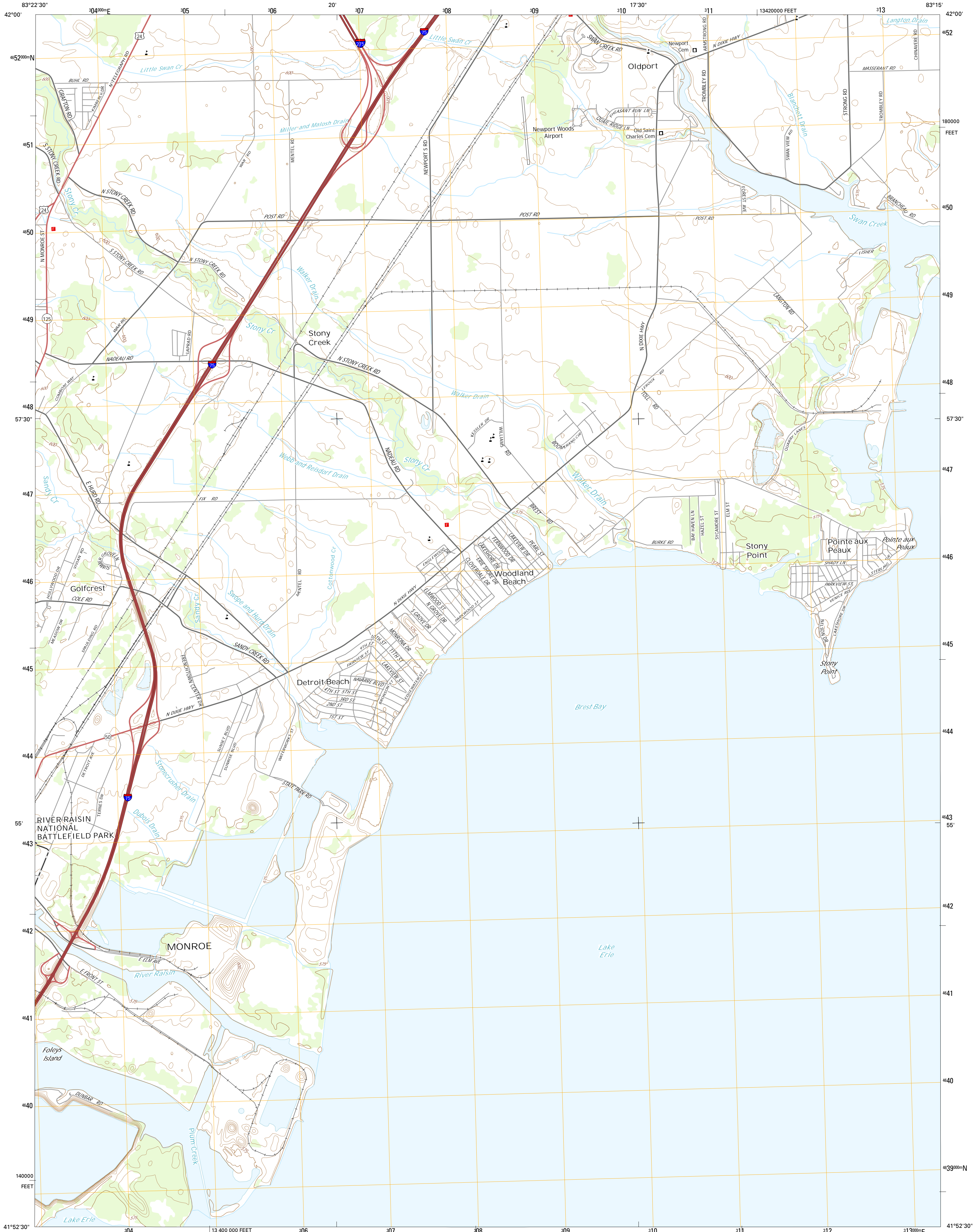


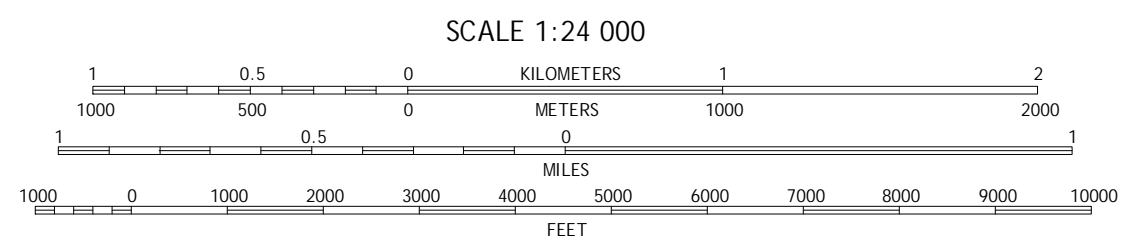
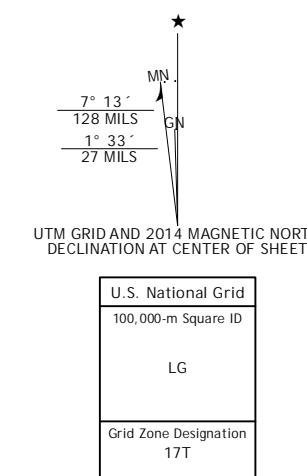
Table with 3 columns and 8 rows showing adjacent quadrangles: 1 Maybee, 2 Carleton, 3 Flat Rock, 4 Ida, 5 Story Point, 6 Lambertville East, 7 Erie, 8 Story Point OE S

MONROE, MI 2014





Produced by the United States Geological Survey North American Datum of 1983 (NAD83) World Geodetic System of 1984 (WGS84) Projection and 1000-meter grid. Universal Transverse Mercator, Zone 17T 10 000-foot ticks: Michigan Coordinate System of 1983 (south zone)



ROAD CLASSIFICATION table with symbols for Expressway, Secondary Hwy, Ramp, Interstate Route, Local Connector, 4WD, US Route, and State Route.

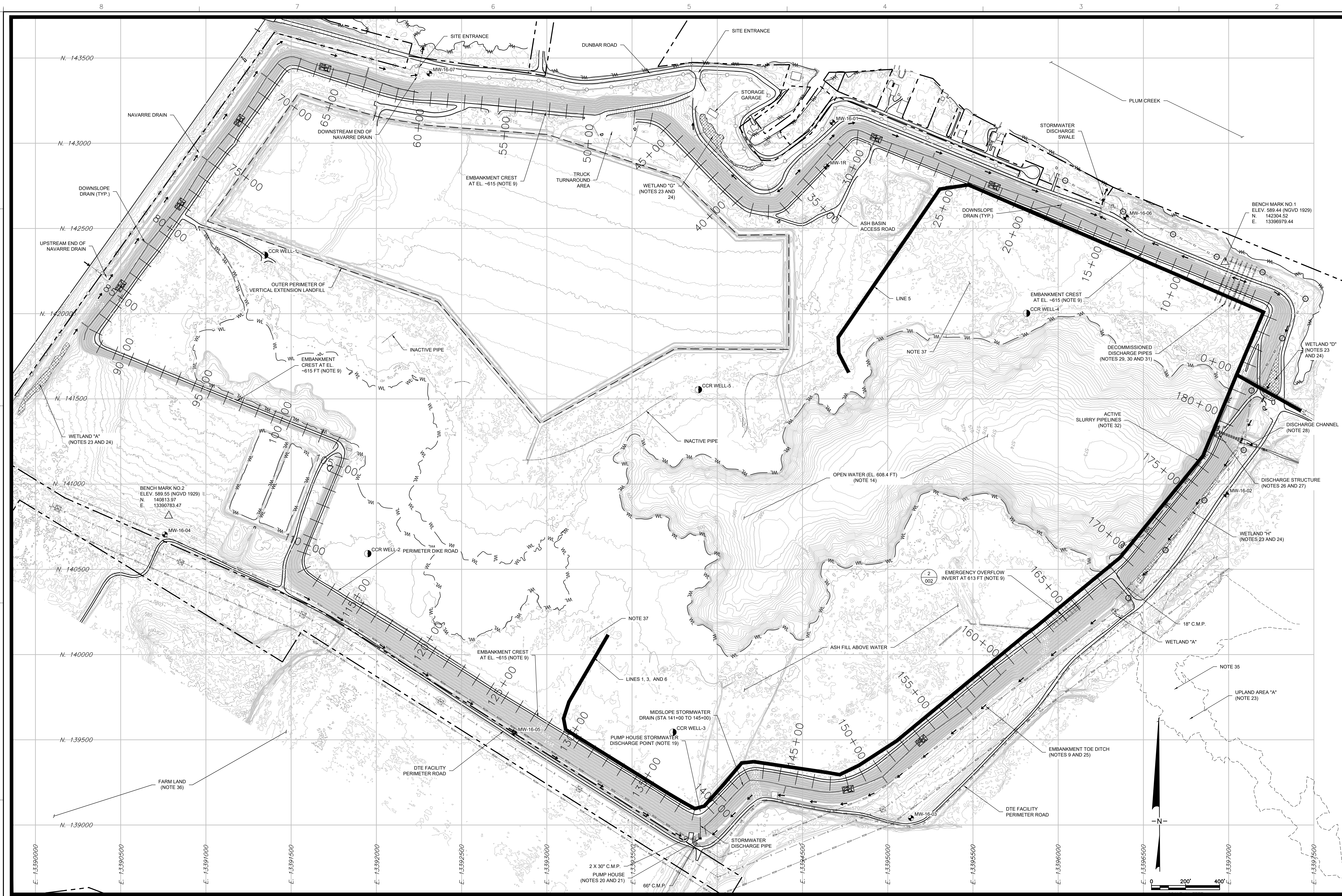
Grid table with numbers 1-8 and a red square highlighting the current quadrangle's position.

STONY POINT, MI 2014



APPENDIX B

OPERATIONS PLAN DRAWINGS



- ### LEGEND
- PROPERTY BOUNDARY (NOTE 16)
 - ACTIVE SLURRY PIPELINES (NOTE 32)
 - DRAINAGE DIRECTION (NOTE 22)
 - CULVERT
 - △ BENCHMARK LOCATION
 - GROUNDWATER MONITORING WELL
 - CCR WELL LOCATION
 - ELECTRIC TOWER (NOTE 17)
 - ELECTRIC POLE (NOTE 18)
 - UNDERGROUND ELECTRIC LINE (NOTE 18)
 - CONSUMERS ENERGY ELECTRIC LINES (NOTE 18)
 - ITC ELECTRIC LINES (NOTE 17)
 - RIGHT OF WAY (NOTE 17)
 - FENCE
 - INACTIVE PIPE
 - WETLAND (NOTES 23, 24 AND 25)
 - WATER LINE (NOTE 15)
 - UPLAND AREA BOUNDARY (NOTE 23)
 - VEHICLE CROSSING (NOTE 34)

- ### NOTES
- 1) THE OPERATIONS PLAN DRAWINGS SHALL BE USED IN CONJUNCTION WITH DOCUMENT MONPP-1301 AND SHALL BE UPDATED AS NEW INFORMATION RELATED TO THE ASH BASIN AND VERTICAL EXTENSION IS AVAILABLE.
 - 2) HORIZONTAL GRID COORDINATE SYSTEM UNITS ARE IN FEET AND REFERENCED TO MICHIGAN SOUTH STATE PLANE COORDINATES SYSTEM (NAD83). ELEVATIONS ARE IN FEET AND REFERENCED TO NATIONAL GEODETIC VERTICAL DATUM (NGVD29). DATUM IS 1.47 FT HIGHER THAN THE PLANT DATUM.
 - 3) THE EXISTING GRADES ARE BASED ON AERIAL SURVEY PERFORMED BY KUCERA INTERNATIONAL INC. ON JULY 3, 2021.
 - 4) THE ASH BASIN AND VERTICAL EXTENSION ARE CONSIDERED SEPARATE COAL COMBUSTION RESIDUAL (CCR) UNITS. HOWEVER, THEY ARE OPERATED WITH THE SAME OPERATING LICENSE NO. 0579 UNDER THE MICHIGAN PART 115, SOLID WASTE MANAGEMENT. OF THE NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994. THE ASH BASIN IS A COAL ASH SLURRY OPERATING PERMIT AND THE VERTICAL EXTENSION IS A COAL ASH LANDFILL.
 - 5) OPERATIONS AT THE FLY ASH BASIN AND THE VERTICAL EXTENSION ARE ALSO COVERED UNDER THE MONPP RENEWABLE OPERATING PERMIT AND THE MONPP NPDES PERMIT.
 - 6) THE OPERATIONS PLAN DRAWINGS REFER TO VARIOUS DTE DOCUMENTS. THESE DOCUMENTS ARE SUMMARIZED IN TABLES 7 AND 8.
 - 7) THE ASH BASIN EMBANKMENT (EMBANKMENT) WAS CONSTRUCTED FROM 1970 TO 1973 ON SITE SILTY CLAY SOIL THAT WAS EXCAVATED APPROXIMATELY 10 TO 10 FT OF NATIVE GROUND, WITHIN THE CONFINES OF ASH BASIN FOOTPRINT. WAS UTILIZED TO CONSTRUCT THE EMBANKMENT. THE ORIGINAL DESIGN CRITERIA IS PROVIDED IN DOCUMENT MONPP-144-77 HISTORY OF CONSTRUCTION DOCUMENTS ARE PROVIDED IN MONPP-0168.
 - 8) STATION NUMBERS SHOWN ON THE DRAWING IS ESTABLISHED ALONG THE CENTERLINE OF THE ORIGINAL EMBANKMENT CREST. STATION MARKERS ARE LOCATED AT THE SITE BY THE INTERIOR EDGE OF THE EMBANKMENT CREST AT EVERY 50 FT INTERVAL STARTING FROM STATION 0+00 PROGRESSING COUNTER-CLOCKWISE. THESE STATION MARKERS SHALL BE MAINTAINED AT ALL TIMES.
 - 9) THE ELEVATION OF THE EMBANKMENT CREST TYPICALLY RANGES FROM APPROXIMATELY 614.5 FT TO 615.5 FT. IN OCTOBER 2016 THE EMBANKMENT CREST WAS MODIFIED BETWEEN STATIONS 0+00 AND 10+00 TO HAVE A MINIMUM ELEVATION OF 613 FT (SEE MONPP-0118-10 FOR MORE INFORMATION). THE ELEVATION OF THE EMBANKMENT TOE RANGES FROM EL. 566 FT BETWEEN STATIONS 139+00 AND 142+00 TO EL. 603 FT BETWEEN STATIONS 5+00 AND 10+00. THE EMBANKMENT WAS ORIGINALLY BUILT WITH 2 HORIZONTAL TO 1 VERTICAL (2H:1V) SIDE SLOPES AND FLATTENED IN SELECT AREAS FROM 2010 THROUGH 2019.
 - 10) MITIGATION OF THE EMBANKMENT ALONG THE PERIMETER OF THE ASH BASIN WAS INITIATED IN 2009 AND COMPLETED IN NOVEMBER 2019. DOCUMENT MONPP-0098 PROVIDES MORE INFORMATION ON THE SURFICIAL SLOUGHS THAT INITIATED THE MITIGATION PLAN.
 - 11) TABLE 1 SUMMARIZES THE SECTIONS OF THE EMBANKMENT THAT WERE MITIGATED BY FLATTENING OR REPAIR OF THE SLOPES. MORE DETAILED EXISTING CONDITION INFORMATION IS PROVIDED IN THE DOCUMENTS PRESENTED IN TABLE 1 FOR THE RESPECTIVE SECTIONS OF THE ASH BASIN.
 - 12) THE FIRM WHO PREPARED THE DESIGN FOR 2009-2013, 2017 AND 2019 MITIGATION PLAN IS GEOSYNTEC CONSULTANTS - CHICAGO OFFICE (PHONE #312-658-0500). THE ENGINEER OF RECORD FOR THE DESIGN WAS JOHN P. SEMADUR, P.E. #620103055 (PHONE #312-658-0500). THE ENGINEER OF RECORD FOR THE 2019 DESIGN WAS OMER BOZOK, P.E. #6201062700.
 - 13) ALL CONSTRUCTION ACTIVITIES AND COORDINATION SHALL BE CONDUCTED FOLLOWING ESTABLISHED PROTOCOLS. CHART 1 ON DRAWING 1 PROVIDES THE ORGANIZATION CHART FOR PERSONNEL RESPONSIBLE FOR THE FACILITY OPERATIONS.
 - 14) THE BATHYMETRIC SURVEY OF THE SURFACE OF SUBMERGED ASH WAS PERFORMED EACH YEAR FROM 2000 TO 2021 BY THE DTE SURVEYING SERVICES GROUP. BATHYMETRIC SURVEYS TO BE SCHEDULED TO BE COMPLETED EVERY YEAR. CONTACT THE DTE CHIEF SURVEYOR FOR THE CURRENT SURVEY RESULTS.
 - 15) THE EDGE OF WATER LINE IN THE ASH BASIN WAS SURVEYED IN MAY 2021. IT SHALL BE REVISED AS NEW BATHYMETRIC SURVEY RESULTS ARE AVAILABLE.
 - 16) THE ENTIRE EXTENT OF THE PROPERTY BOUNDARY AND MORE INFORMATION ON DTE OWNED AREAS AROUND THE ASH BASIN ARE PROVIDED IN DRAWINGS 0695-3A5-D AND 0695-3A5-B.
 - 17) ITC HOLDINGS (PHONE #248-946-3000) OWNS THE ELECTRIC TOWERS AND LINES BETWEEN STATIONS 89+00 AND 169+00. A 100-FT RIGHT-OF-WAY ON EITHER SIDE OF THE ELECTRIC TOWERS AND LINES BETWEEN STATIONS 89+00 AND 169+00 SHALL BE OBSERVED. NO CONSTRUCTION SHALL BE PERFORMED WITHIN 50 FT OF THE ELECTRIC TOWERS. THERE SHALL BE A MINIMUM OF 20 FT OF OVERHEAD CLEARANCE WHEN WORK IS PERFORMED IN THE VICINITY OF ELECTRIC LINES.
 - 18) CONSUMERS ENERGY (PHONE #800-477-0800) OWNS THE UNDERGROUND ELECTRIC LINES BETWEEN STATIONS 139+00 AND 169+00. ABOVE GROUND ELECTRIC LINES AND POLES BETWEEN STATIONS 169+00 AND 19+00 (COUNTER CLOCKWISE). NO CONSTRUCTION SHALL BE PERFORMED WITHIN 15 FT OF THE ELECTRIC POLES. THERE SHALL BE A MINIMUM OF 5 FT OF OVERHEAD CLEARANCE WHEN WORK IS PERFORMED IN THE VICINITY OF ELECTRIC LINES. THE LOCATION OF ELECTRIC POLES BETWEEN STATIONS 5+00 AND 20+00 ARE APPROXIMATE.
 - 19) STORMWATER COLLECTED AT THE SOUTHEAST CORNER OF THE SITE IS DISCHARGED INTO THE ASH BASIN BY PUMP HOUSE OPERATIONS AT STATION 139+00.
 - 20) THE PUMP HOUSE HAS TWO VERTICAL TURBINE PUMPS. THE LEAD PUMP IS SET TO TURN ON WHEN WATER LEVEL REACHES AT EL. 566.2 FT AND THE SECONDARY PUMP IS SET TO TURN ON AT EL. 568.7 FT AS OF DECEMBER 2012. THE LEAD AND SECONDARY PUMPS ALTERNATE EVERY PUMP CYCLE. AS-BUILT INFORMATION OF THE PUMP HOUSE IS PROVIDED IN ATTACHMENT 4 OF DOCUMENT MONPP-0113-10 AND ON DRAWING 0695-C-4-0200.
 - 21) MECHANICAL WORK ASSOCIATED WITH THE PUMP HOUSE WAS CONDUCTED BY PIPE SYSTEMS INC. FROM LAKE ORION, MI (PHONE #484-490-1900). ELECTRICAL WORK ASSOCIATED WITH THE PUMP HOUSE WAS CONDUCTED BY TRANSFER FROM TOLEDO, OH (PHONE #419-385-7573).
 - 22) ARROW SYMBOLS SHOW THE GENERAL DIRECTION OF THE SURFACE WATER DRAINAGE. HOWEVER, THERE MAY BE LOCALIZED AREAS ALONG THE TOE DITCHES WHERE STORMWATER MAY POND BEFORE DRAINING IN THE DIRECTION SHOWN ON THE PLAN.
 - 23) WETLANDS "A" (IN THE WEST), "C", "D", AND "G" WERE DELINEATED BY ECOLOGICAL SERVICES INC. IN JUNE 2009. WETLAND "A" AND UPLAND AREA "A" BOUNDARIES WERE DELINEATED BY DTE'S ENVIRONMENTAL MANAGEMENT AND RESOURCES DEPARTMENT IN NOVEMBER 2011 AND JULY 2010, RESPECTIVELY. WETLAND "A" (IN THE EAST) WAS DELINEATED BY DTE'S ENVIRONMENTAL MANAGEMENT AND RESOURCES IN JULY 2016.
 - 24) WETLANDS SHALL NOT BE ENCRUSTED UPON WITHOUT THE REQUIRED PERMIT.
 - 25) THE TOE DITCHES FROM STATION 3+00 TO 35+00, 35+50 TO 45+00, 111+50 TO 139+00 AND FROM 150+00 TO 169+00 WERE SEEDDED WITH WETLAND SEED MIX.
 - 26) THE WATER LEVEL IN THE ASH BASIN IS CONTROLLED WITH THE DISCHARGE STRUCTURE AT STATION 179+00. THE WATER LEVEL IN THE ASH BASIN IS CONTROLLED BETWEEN EL. 607.7 FT AND 609 FT, EXCLUDING EXTREME CLIMATIC EVENTS. DRAWINGS 0695-002-1108, 0695-C-0-0506 AND 0695-C-0-0507 PROVIDE DETAILED INFORMATION ON THE DISCHARGE STRUCTURE. DISCHARGE STRUCTURE WAS MODIFIED IN 2016. DRAWING 0695-C-0-0506 PROVIDES THE AS-BUILT CONDITION STORFLORES ARE UTILIZED TO ALLOW FOR VIDEO INSPECTION OF DISCHARGE PIPES.
 - 27) THE DISCHARGE PIPES WERE INSPECTED WITH VIDEO CAMERA IN JUNE, 2020. DTE CONCLUDED THAT THE PIPES WERE IN GOOD CONDITION.
 - 28) WATER FROM THE ASH BASIN IS DISCHARGED TO THE PLANT DISCHARGE CHANNEL WHICH DISCHARGES TO LAKE ERIE UNDER AN NPDES PERMIT. DRAWING 0695-C-0-0500 PROVIDES MORE INFORMATION ON THE DISCHARGE CHANNEL.
 - 29) DECOMMISSIONED DISCHARGE PIPES CONSIST OF 6 CONCRETE PIPES AND THEY ARE NUMBERED THROUGH 6 FROM EAST TO WEST. THESE PIPES WERE DECOMMISSIONED IN MAY 1977. DRAWINGS 0695-H-4-0007-H PROVIDES MORE INFORMATION ON THE WORK CONDUCTED IN MAY 1977.
 - 30) VISUAL INSPECTION OF THE DECOMMISSIONED DISCHARGE PIPES WAS PERFORMED BY NTH CONSULTANTS IN DECEMBER 2011. HOLES WERE DISCOVERED AT THE TOP OF PIPES 1, 3 AND 4 APPROXIMATELY 115 FT FROM THE PLUM CREEK END OF THE PIPES. MORE INFORMATION ON THE INSPECTION RESULTS IS PROVIDED IN DOCUMENT MONPP-0143-12. IN DECEMBER 2012, THE DECOMMISSIONED DISCHARGE PIPES WERE COMPLETELY FILLED WITH GROUT. DOCUMENT MONPP-0146-12 AND DRAWINGS 0695-H-4-0007-H PROVIDES DETAILED INFORMATION ON GROUTING/SEALING.

TABLE 1. SUMMARY OF 2009-2019 MITIGATION (NOTES 10 AND 11)

CONSTRUCTION YEAR	EXTENT OF MITIGATION	CONSTRUCTION ACTIVITY	DOCUMENT #
2009	FROM STATION 60+50 TO 84+50	RELOCATED NAVARRE DRAIN	MONPP-0134-09
	FROM STATION 77+70 TO 82+10	TEMPORARILY MITIGATED UPPER SLOPES	
	FROM STATION 88+00 TO 139+00	MOWED THE EMBANKMENT SLOPE AND REMOVED BRUSH/TREES	
2010	FROM STATION 60+00 TO 88+00 AND FROM STATION 139+00 TO 150+50	REPLACED TOP 2-FT FLATTENED SLOPES TO 2.5H:1V AND INSTALLED A MIDSLOPE STORMWATER DITCH	MONPP-0113-10
	FROM STATION 14+00 TO 35+00 AND FROM STATION 150+50 TO 160+00	REPLACED TOPSOIL	MONPP-0132-11
2012	FROM STATION 160+00 TO 169+00	REPLACED TOPSOIL	MONPP-0129-12
	FROM STATION 169+00 TO 178+75	REPLACED TOP 2-FT AND FLATTENED SLOPES TO 2.5H:1V	
2013	FROM STATION 178+75 TO 14+00	REPLACED TOPSOIL	MONPP-0147-13
	FROM STATION 35+00 TO 53+00	REPLACED TOP 2-FT AND FLATTENED SLOPES TO 2.5H:1V	
	FROM STATION 53+00 TO 59+00	REPLACED TOPSOIL	
2017	FROM STATION 52+00 TO 60+00	FLATTENED TO 3H:1V	MONPP-PCR-0001-17
	FROM STATION 141+00 TO 145+00	REPLACED SLOUGHED SOILS AND INSTALLED MIDSLOPE STORMWATER DRAIN	
2019	FROM STATION 160+00 TO 168+00	FLATTENED TO 3H:1V	---
	FROM STATION 109+00 TO 139+00	FLATTENED TO 3H:1V	

ACTIVITIES:

- 31) THE INLET OF PIPE #5 WAS VISIBLE IN THE ASH BASIN PRIOR TO DECEMBER 2012. ABANDONMENT ACTIVITIES AND WAS PARTIALLY FILLED WITH SEDIMENT. IN DECEMBER 2012, THE EXPOSED SECTION OF THE PIPE WAS CRUSHED AND PLACED IN THE PIPE INLET. THEN, THE REMAINING SECTION OF THE PIPE INLET WAS FILLED WITH FLY ASH AND SOIL.
- 32) THE EXTENT OF THE ACTIVE SLURRY PIPELINES IS CURRENT AS OF JANUARY 2021. THE SECTION OF THE ACTIVE SLURRY PIPELINES FROM STATION 143+00 TO 0+00 WAS INSPECTED AS PART OF THE PIPE EXTENSION PROJECT THAT WAS COMPLETED BY THE END OF OCTOBER 2012. DOCUMENT MONPP-0145-12 PROVIDES THE TEST RESULTS.
- 33) DOCUMENT MONPP-0154-15 HAS THE MOST UP TO DATE FILL PLAN.
- 34) VEHICLE CROSSINGS WERE CONSTRUCTED AT THE HIGH POINTS OF THE MIDSLOPE STORMWATER DITCHES TO PROVIDE ACCESS TO LOWER SLOPES FOR MOVING VEHICLES.
- 35) MATERIALS IN THE STOCKPILE AT STATION 168+00 IN UPLAND AREA "A" WERE UNSUITABLE FOR THE 2009-2013 MITIGATION PLAN.
- 36) FARMLAND SOUTH OF THE ASH BASIN IS OWNED BY DTE AND IS RESERVED FOR A WETLAND MITIGATION PROJECT FOR THE FERMILAB NUCLEAR POWER PLANT.
- 37) THERE ARE TWO TYPES OF DOZERS THAT ARE CURRENTLY OPERATED AT THE SITE: (I) JOHN DEERE 650 LGP DOZER WITH A GROUND PRESSURE OF 4.7 PSI, WHICH IS MAINLY USED TO RELOCATE SLURRY LINES AS NEEDED; AND (II) CATERPILLAR D9N WIDE TRACK DOZER (D9N) WITH A GROUND PRESSURE OF 4.8 PSI, WHICH IS MOSTLY USED AT THE VERTICAL EXTENSION LANDFILL. WHEN OPERATING WITHIN THE ASH BASIN, NO EQUIPMENT OTHER THAN JOHN DEERE 650 LGP DOZER OR EQUIVALENT SHALL BE USED. THE DOZER SHALL BE OPERATED IN A STRAIGHT DIRECTION AS MUCH AS POSSIBLE. TWISTING AND TURNING WITHIN THE ASH BASIN SHALL BE MINIMIZED. DOZER SHALL NOT TRACK ALONG TRENCH ALIGNMENTS OR WATER LINE. INSTEAD IT SHALL TRACK UP TO IT. WHEN OPERATING WITHIN 100 FT OF WATER LINE, THE DOZER SHALL BE ATTACHED TO D9N DOZER WITH THE BUILT IN WINCH AND THE TWO OPERATORS SHALL BE IN COMMUNICATION IN CASE THE D9N DOZER OPERATOR NEEDS TO PULL THE OTHER DOZER IF NEEDED. NO EXCAVATORS ARE ALLOWED TO BE OPERATED WITHIN THE ASH BASIN. EXCEPTIONS MAY BE GRANTED FOR MINI EXCAVATORS OR FLOATING EXCAVATORS BY FUEL SUPPLY AND ESQ ON A CASE-BY-CASE BASIS. IN SUCH CASES, ENGINEERED PLANS SHALL BE PREPARED BY OR APPROVED BY DTE.

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OPERATIONS PLAN

The Detroit Edison Co. Engineering

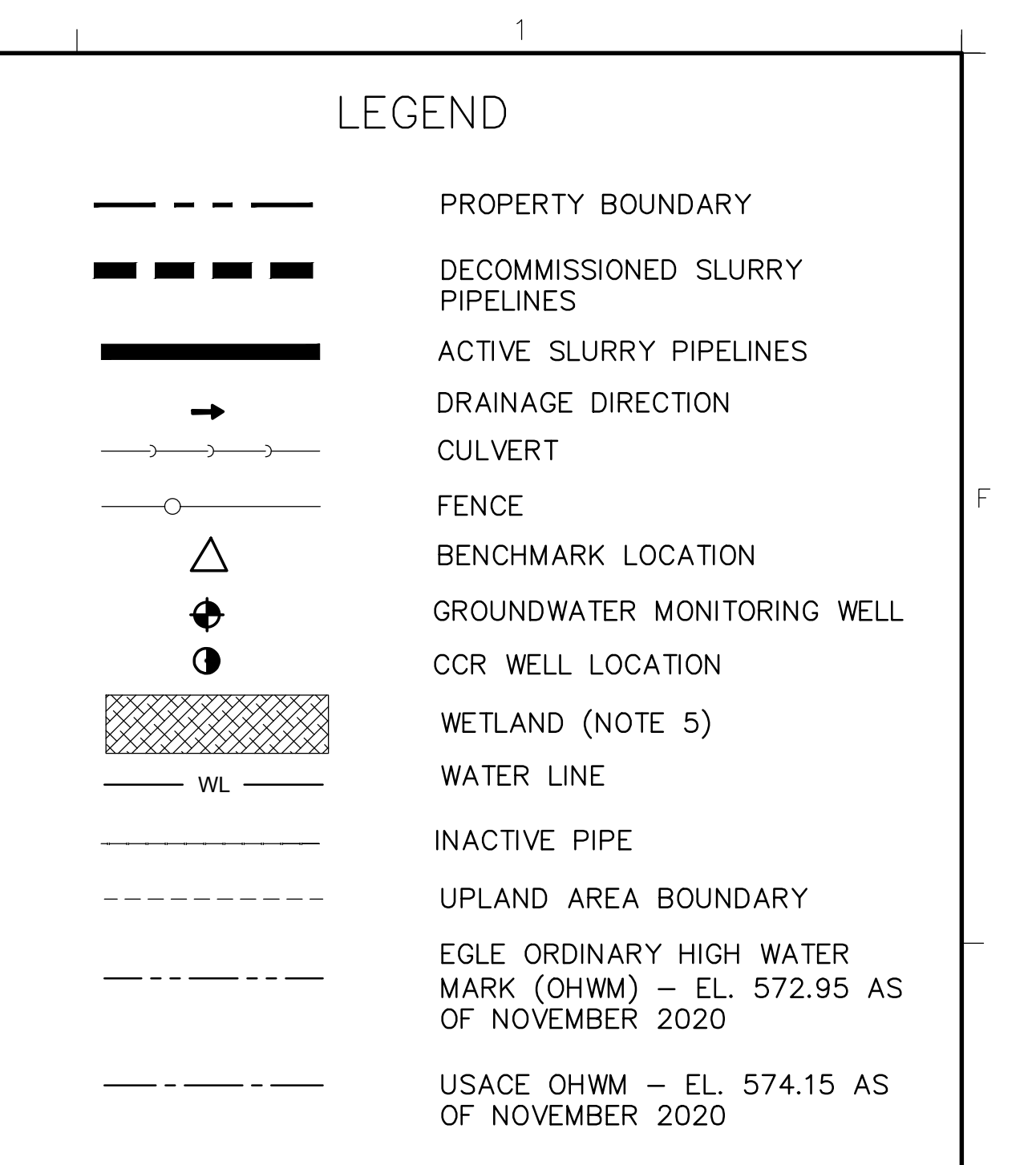
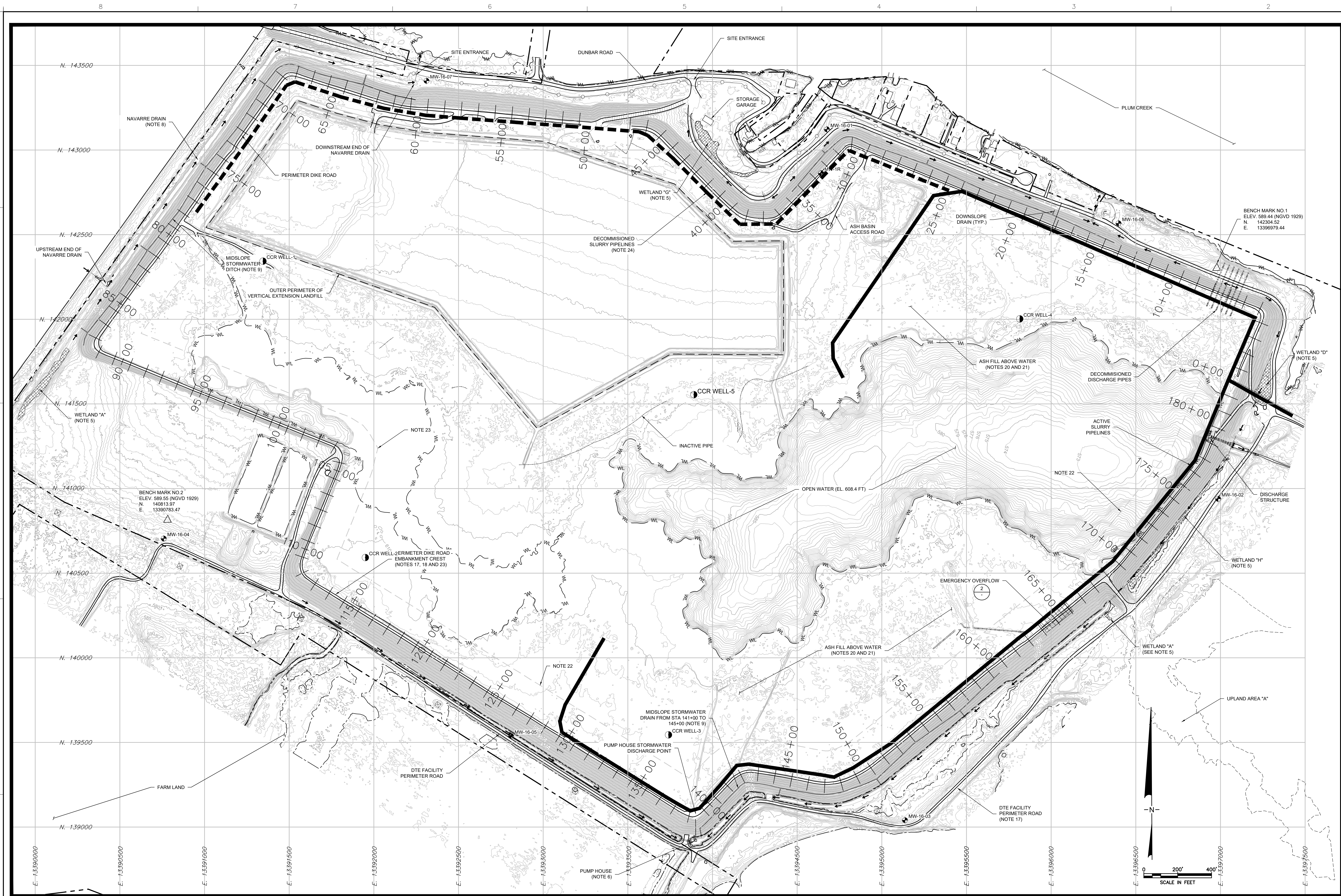
EXISTING CONDITIONS

DATE	DESCRIPTION	DATE	DESCRIPTION
12/14/12	DESIGNED BY	12/14/12	DESIGNED BY
	CHECKED BY		CHECKED BY
	APPROVED BY		APPROVED BY

MONROE POWER PLANT

ENGINEERING SUPPORT ORGANIZATION

DRAWING NUMBER: 0695-C-4-0243-001-REV D



- USACE OHWM - EL. 574.15 AS OF NOVEMBER 2020
- NOTE 1: ALL CONSTRUCTION, ENGINEERING, MAINTENANCE, MONITORING/INSPECTION AND OPERATION DECISIONS REGARDING ASH BASIN SHOULD BE MADE AFTER CONSULTING WITH AND UPON APPROVAL OF THE SURVEILLANCE MONITORING COMMITTEE.
- NOTE 2: THE GEOTECHNICAL SITE CHARACTERIZATION REPORT IS PROVIDED IN DOCUMENT MONPP-0135-10.
- NOTE 3: THE PERMANENT SEED MIX PROVIDED IN TABLE 2 AND WETLAND SEED MIX PROVIDED IN TABLE 3 WERE SPECIFIED FOR THE 2017 AND 2019 MITIGATION PLAN. EACH YEAR A SLIGHTLY DIFFERENT SEED MIX WAS USED DEPENDING ON THE AVAILABILITY OF THE SEED. MICHIGAN WILDFLOWER FACILITY (PHONE #817-647-6010) PROVIDED THE SEED MIX FOR 2017 EMBANKMENT MITIGATION. ERNST CONSERVATION SEEDS, INC. (PHONE #800-873-3321) PROVIDED THE SEED MIX FOR THE 2019 EMBANKMENT MITIGATION.
- NOTE 4: THE WETLAND SEED MIX WAS SPREAD ALONG THE TOE DITCH FROM STATION 3+00 TO 39+00, 50+00 TO 45+00, 119+00 TO 139+00, AND FROM 150+00 TO 169+00. PERMANENT SEED MIX WAS SPREAD ON THE EMBANKMENT SLOPES AND ON ANY AREA THAT WAS DISTURBED DURING CONSTRUCTION.
- NOTE 5: WETLANDS SHOULD NOT BE ENCROACHED AT ALL TIMES WITHOUT A PERMIT. TABLE 4 SUMMARIZES THE NECESSARY PERMITS FOR CONDUCTING WORK IN WETLAND AREA.
- NOTE 6: THE PUMP HOUSE EQUIPMENT AND THE STORMWATER STRUCTURES WERE DESIGNED TO CONVEY STORMWATER FROM A 25-YEAR, 24-HOUR TYPE II STORM EVENT (APPROXIMATELY 4-IN. TYPE II STORM DRAINAGE) USING THE DESIGN CALCULATIONS AS IT IS CONSIDERED AS THE 'AVERAGE CASE' AMONG TYPE I, II AND III STORM EVENTS BASED ON ILLINOIS STATE WATER SURVEY BULLETIN #7. DESIGN OF THE PUMP HOUSE EQUIPMENT AND STORMWATER STRUCTURES DID NOT CONSIDER STORMWATER DRAINING IN OR OUT FROM THE FARM FIELD SOUTH OF THE ASH BASIN.
- NOTE 7: THE TOE DITCH IS APPROXIMATELY 11,700-FT LONG AND EXTENDS FROM STATION 0+00 TO 45+00 AND FROM 110+00 TO 181+00. SECTIONS OF THE TOE DITCH WERE RECONSTRUCTED FROM STATION 0+00 TO 39+00, 50+00 TO 45+00, AND FROM 119+00 TO 169+00. TOE DITCHES ARE APPROXIMATELY 4-FT WIDE AND HAVE SIDE SLOPES THAT ARE APPROXIMATELY 2H:1V OR SHALLOWER. THE RECONSTRUCTED TOE DITCH FROM STATION 110+00 TO 181+00 WAS RECONSTRUCTED TO BE 12 FT WIDE WITH SIDE SLOPES THAT ARE APPROXIMATELY 3H:1V OR SHALLOWER. THE RECONSTRUCTED TOE DITCH FROM 110+00 TO 139+00 WAS RECONSTRUCTED TO BE 7 FT WIDE WITH SIDE SLOPES OF 2.5H:1V OR SHALLOWER.
- NOTE 8: NAVARRE DRAIN IS APPROXIMATELY 2,500-FT LONG, 6-FT WIDE AND HAS SIDE SLOPES OF APPROXIMATELY 2.5H:1V.
- NOTE 9: THE MIDSLOPE STORMWATER DITCH IS APPROXIMATELY 7,000-FT LONG AND EXTENDS FROM STATION 144+00 TO 145+00 AND FROM 139+00 TO 169+00. IT CONSISTS OF 2-FT DIAMETER SEMI-CIRCULAR HDPE SECTIONS MANUFACTURED BY SMARTDITCH (PHONE #866-578-2783) EXCEPT IN AREAS WHERE SMARTDITCH HAS BEEN REPLACED WITH MIDSLOPE DRAIN. SMARTDITCH HAS BEEN REPLACED WITH MIDSLOPE DRAIN BETWEEN STATIONS 66+00 AND 67+00, AND BETWEEN STATIONS 141+00 AND 145+00.
- NOTE 10: A GLOBAL STABILITY ANALYSIS WAS PERFORMED FOR THE MITIGATED SECTIONS OF THE EMBANKMENT FOR THE DESIGN. TABLE 5 PROVIDES THE ENGINEERING PARAMETERS USED IN THE ANALYSES. IN ADDITION, GEOSYNTEC EVALUATED THE GLOBAL STABILITY OF THE SECTIONS OF THE EMBANKMENT THAT WERE NOT FLATTENED USING A PROBABILISTIC APPROACH. IT WAS CONCLUDED THAT THESE SECTIONS OF THE EMBANKMENT WERE 'STABLE'. DOCUMENT MONPP-0118-11 PROVIDES MORE INFORMATION ON GEOSYNTEC'S CONCLUSION AND ASSUMPTIONS.
- NOTE 11: ENGINEERING PARAMETERS PRESENTED IN TABLE 5 WERE USED AFTER A THOROUGH REVIEW OF APPLICABLE DATA. ANY FUTURE DESIGNS AND/OR MODIFICATIONS TO THE ASH BASIN REQUIRE A COMPREHENSIVE REVIEW TO ALLOW THE DESIGNER TO SELECT DESIGN PARAMETERS APPROPRIATE FOR THE WORK. GEOSYNTEC ASSUMES NO LIABILITY FOR FUTURE DESIGN USE OF THESE ENGINEERING PARAMETERS.
- NOTE 12: THE SECTIONS OF THE EMBANKMENT WERE FLATTENED UTILIZING CLAY FILL. TABLE 1 SUMMARIZES THE SECTIONS OF THE EMBANKMENT THAT WERE MITIGATED. CLAY FILL WAS SPECIFIED TO BE 'SC', 'CL' OR 'CH' IN ACCORDANCE WITH ASTM D 2487 (UNIFIED SOIL CLASSIFICATION SYSTEM), TO HAVE A PLASTICITY INDEX OF BETWEEN 10 AND 30 AND NOT LESS THAN 40 PERCENT BY DRY WEIGHT PASSING THROUGH THE STANDARD U.S. # 200 SIEVE. CLAY FILL SHALL HAVE A MINIMUM COMPACTED THICKNESS OF 18 INCHES AND BE COMPACTED TO A MINIMUM OF 90 PERCENT OF THE MAXIMUM DRY DENSITY AND HAVE A MOISTURE CONTENT THAT IS WITHIN ± 2% OF THE OPTIMUM MOISTURE CONTENT AS MEASURED IN ACCORDANCE WITH ASTM D 1557 (MODIFIED PROCTOR).
- NOTE 13: THE SECTIONS OF THE PERIMETER DIKE ROAD, DTE FACILITY PERIMETER ROAD AND ACCESS RAMPS WERE MITIGATED BY PLACING AN APPROXIMATELY 6-IN THICK LAYER OF ROAD SURFACE COURSE. ROAD SURFACE COURSE IS SPECIFIED TO BE MDOT 21AA AGGREGATE PLACED IN 6-IN THICK LAYER LIFTS AND BE COMPACTED TO A MINIMUM OF 90 PERCENT OF THE MAXIMUM DRY DENSITY AS MEASURED IN ACCORDANCE WITH ASTM D 1557 (MODIFIED PROCTOR).
- NOTE 14: REFERENCES FOR THE DETAILED ERECTION SPECIFICATIONS ARE PROVIDED IN DTE DOCUMENTS SUMMARIZED IN TABLE 6.
- NOTE 15: TABLE 4 SUMMARIZES THE PERMITS REQUIRED FOR CERTAIN CONSTRUCTION ACTIVITIES AND IDENTIFIES THE ISSUING REGULATORY AGENCY.
- NOTE 16: FUGITIVE DUST SHALL BE CONTROLLED DURING ALL CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH THE PLANT AIR PERMIT AND FUGITIVE DUST CONTROL PLAN PER 402R-27-80.
- NOTE 17: THE MAXIMUM OPERATING AXLE LOAD CRITERION FOR 11-AXLE HAUL TRUCKS OPERATING ON THE PERIMETER DIKE ROAD, DTE FACILITY PERIMETER ROAD, TRUCK TURNAROUND AREA, ASH BASIN ACCESS ROAD AT STATION 55+00 AND ACCESS RAMPS IS 18,000 LB PER MDT REGULATIONS.
- NOTE 18: ALL VEHICLES SHALL OPERATE A MINIMUM OF FOUR FEET AWAY FROM THE EDGE OF THE EMBANKMENT CREST. INSTALL TRAFFIC CONTROL MEASURES AS NEEDED PER DETAIL 1 ON THIS DRAWING. BASIS FOR THE OFFSET REQUIREMENT IS PROVIDED IN CREST STABILITY MEMO - REV. 3. WHEN MORE THAN ONE VEHICLE IS EXPECTED TO OPERATE ON THE PERIMETER DIKE ROAD ONE WAY TRAFFIC SHALL BE ESTABLISHED FOR THAT DURATION.
- NOTE 19: VEHICLES LARGER THAN A PICKUP TRUCK SHALL NOT OPERATE ON THE ASH BASIN ACCESS ROAD AT STATION 30+00.
- NOTE 20: NO STOCKPILES SHALL BE CONSTRUCTED CLOSER THAN 70 FT FROM THE INTERIOR EDGE OF THE EMBANKMENT CREST. STOCKPILING ON THE SURFACE OF THE EXPOSED FLY ASH SHOULD BE LIMITED TO A MAXIMUM HEIGHT OF 15-FT. THE STOCKPILE SHOULD BE CONSTRUCTED IN MAXIMUM 2-FT THICK LIFTS AND SHOULD BE SPREAD UNIFORMLY OVER THE ENTIRE STOCKPILE AREA TO AVOID CONCENTRATED LOADING. THE FIRST LIFT OF THE STOCKPILE SHOULD BE SPREAD OUT IN ONE 2-FT HIGH LIFT UNTIL A 20-FT X 20-FT MINIMUM FOOTPRINT IS ESTABLISHED BEFORE ADDING ADDITIONAL LIFTS.
- NOTE 21: PITCH THE PERIMETER DIKE ROAD ONE PERCENT AFTER OPERATING ON EXPOSED ASH SURFACES. THE ASH SURFACE REFLECTS A CRUST CREATED FROM THE DRYING OF THE ASH BUT THERE IS VERY SOFT ASH BELOW THE CRUST. CONSEQUENTLY, THE CRUST MAY SEPARATE OR OTHERWISE FAIL CAUSING LOSS OF BEARING CAPACITY BELOW THE EQUIPMENT THAT CAN LEAD TO SINKING OF THE EQUIPMENT INTO THE ASH AND EVEN SUBMERGENCE UNDER THE ASH.
- NOTE 22: ASH DEPOSITED BETWEEN THE EMBANKMENT AND THE DRAINAGE LINE SHALL NOT BE REMOVED BEFORE OR IMMEDIATELY AFTER REMOVING THE ASH BASIN WATER. IF DTE PLANS TO REMOVE THIS ASH, GEOSYNTEC WOULD RECOMMEND THAT AN ADDITIONAL SURVEY OF THE ASH SURFACE BE CONDUCTED USING ANTICIPATED WATER DRAIN DOWN RATES. FURTHERMORE, IF THE ASH BASIN WATER LEVEL IS TO BE LOWERED, THE ASH SURFACE LEVELS OF THE ASH BASIN WATER SHOULD BE BATHYMETRIC SURVEY SHALL BE USED TO VERIFY THE ASH GEOMETRY IS CONSISTENT WITH THE ASSUMPTIONS IN THE SLOPE STABILITY ANALYSIS PROVIDED IN MONPP-0115-13. REMOVAL OF WATER AND EARTHWORK WITHIN THE ASH BASIN SHALL BE CONDUCTED ONLY AFTER THE CONSTRUCTION DOCUMENTS ARE PREPARED AND STAMPED BY A LICENSED PROFESSIONAL ENGINEER.
- NOTE 23: PITCH THE PERIMETER DIKE ROAD ONE PERCENT AFTER OPERATING ON STORMWATER RUN OFF. WHEN PLACING ADDITIONAL ROAD SURFACE COURSE FOR MITIGATION OF POTENTIAL RUTS AND LOCALIZED LOW SPOTS, REMOVE ALL DECOMMISSIONED SLURRY PIPELINES WERE REMOVED AND HAULED OFFSITE.

TABLE 3 - WETLAND (TOE DITCH) PERMANENT SEED MIX (NOTE 4)

BOTANICAL NAME	COMMON NAME	PLS QUANCES/ACRE
PERMANENT		
GRASSES/SEDGES/RUSHES:		
CAREX CRISTATELLA	CRESTED OVAL SEDGE	1.00
CAREX LURIDA	BOTTLEBRUSH SEDGE	2.00
CAREX VULPINOIDEA	BROWN FOX SEDGE	6.00
ELYMUS VIRGINICUS	VIRGINIA WILD RYE	12.00
GLYCERIA STRATA	FOWL MANNA GRASS	1.25
JUNCUS EFFUSUS	COMMON RUSH	1.00
JUNCUS TORREYI	TORREY'S RUSH	0.25
LEERSIA ORYZOIDES	RICE CUT GRASS	1.00
PANICUM VIRGATUM	SWITCH GRASS	8.00
SCIRPUS ATROVIRENS	DARK GREEN RUSH	1.00
SCIRPUS CYPERINUS	WOOL GRASS	0.50
SCIRPUS FLUVIATILIS	RIVER BULRUSH	0.25
SCIRPUS VALIDUS	GREAT BULRUSH	6.00
		TOTAL 40.25
TEMPORARY COVER:		
AVENA SATIVA	COMMON OAT	360.00
LOLIUM MULTIFLORUM	ANNUAL RYE	100.00
		TOTAL 460.00
FORBS & SHRUBS:		
ALISMA SPP.	WATER PLANTAIN (VARIOUS MIX)	4.25
ASCLEPIAS INCARNATA	SWAMP MILKWEED	1.50
BIDENS SPP.	BIDENS (VARIOUS MIX)	2.00
HELIOPSIS AUTUMNALIS	SWEETWOOD	2.00
LYCOPUS AMERICANUS	COMMON WATER HOREHOUND	0.25
MIMULUS RINGENS	MONKEY FLOWER	1.00
PENTHORUM SEDOIDES	DITCH STONECROP	0.50
POLYGONUM PENNSYLVANICUM	PINKWEED	4.00
RUBROCKIA SUBTOMENTOSA	SWEET BLACK-EYED SUSAN	1.00
SAGITTARIA LATIFOLIA	COMMON ARROWHEAD	1.00
SEBASTIA HEBCACARYA	WILD SENNA	1.00
THALICTRUM DASycARPUM	PURPLE MEADOW RUE	2.00
		TOTAL 20.50

TABLE 2 - PERMANENT SEED MIX (NOTE 3)

BOTANICAL NAME	COMMON NAME	LBS/ACRE
BOULETELOUA CURTIPENDULA	SIDE-OATS GRAMMA	6
SCHIZACHYRIUM SCOPARIOSUS	LITTLE BLUESTEM	6
LOLIUM MULTIFLORUM	ANNUAL RYE	10
		TOTAL (PLS) 22

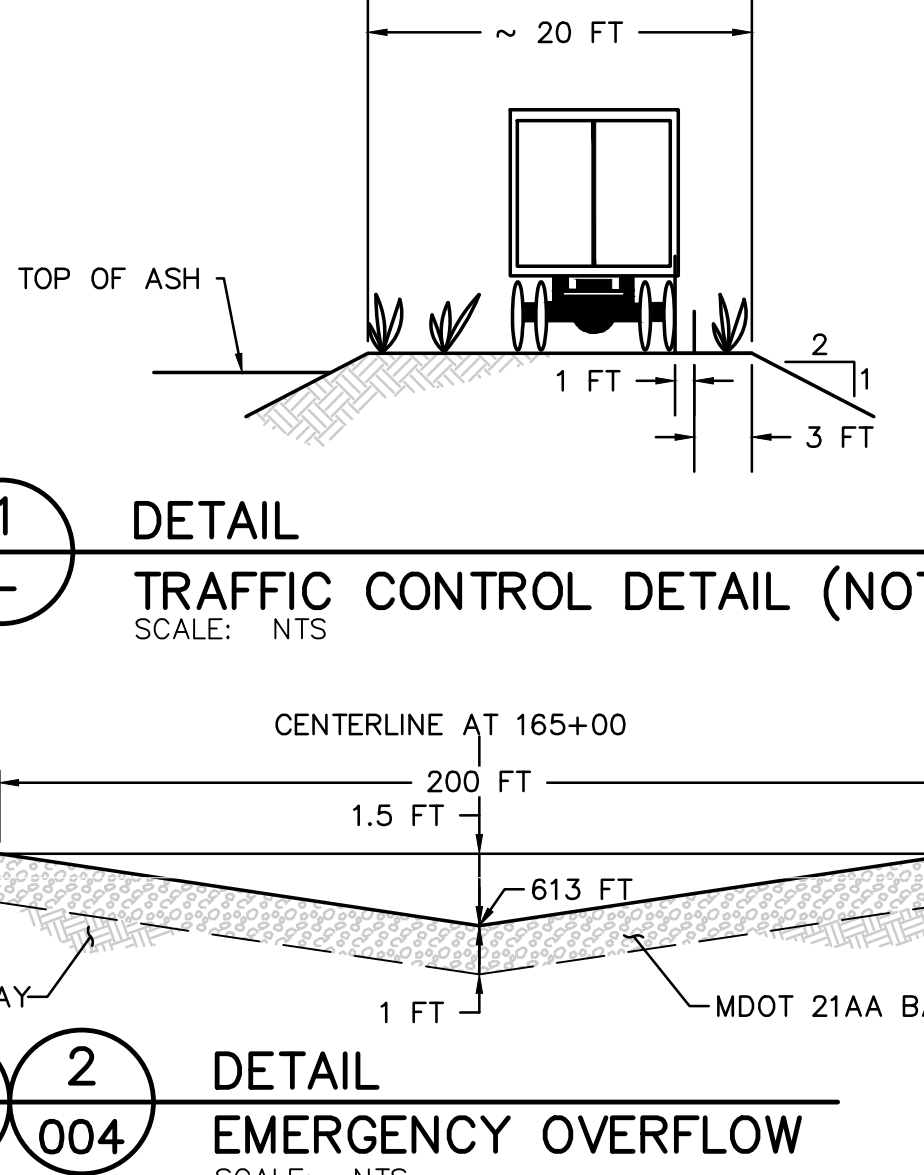


TABLE 4. CONSTRUCTION ACTIVITIES REQUIRING PERMITS

PERMIT	CONSTRUCTION ACTIVITY REQUIRING THE PERMIT	ISSUING AGENCY
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT UNDER "PERMIT BY RULE" UNDER MICHIGAN PUBLIC ACT 451 PART 31	PROJECTS DISTURBING GREATER THAN ONE ACRE	EGL
INLAND LAKES AND STREAMS PERMIT UNDER MICHIGAN PUBLIC ACT 451 PART 301	CHANGING THE GEOMETRY (I.E. FILL OR EXCAVATION) OF A JURISDICTIONAL POND/DITCH/STREAM/LAKE; INTERFERING WITH THE NATURAL FLOW OF A JURISDICTIONAL POND/DITCH/STREAM/LAKE, CONNECTING WATER BODIES	EGL
FLOODPLAIN PERMIT UNDER MICHIGAN PUBLIC ACT 451 PART 31	FILL OR EXCAVATION WITHIN FLOODPLAIN OR FLOODWAY	EGL
WETLAND PROTECTION PERMIT UNDER MICHIGAN PUBLIC ACT 451 PART 303	FILL OR EXCAVATION WITHIN JURISDICTIONAL WETLANDS	EGL
SECTION 404 OF THE CLEAN WATER ACT AND SECTION 10 OF THE RIVERS AND HARBORS ACT	FILL OR EXCAVATION WITHIN WATERS OF THE UNITED STATES (INCLUDING JURISDICTIONAL WETLANDS, STREAMS, GREAT LAKES OR TRADITIONAL NAVIGABLE WATERWAYS) AND BELOW ORDINARY HIGH WATER MARK	USACE
GREAT LAKES SUBMERGED LAND PERMIT UNDER MICHIGAN PUBLIC ACT 451 PART 325	FILLING AND EXCAVATION ACTIVITIES BELOW ORDINARY HIGH WATER MARK OF THE GREAT LAKES	EGL
SOIL EROSION AND SEDIMENT CONTROL PERMIT UNDER MICHIGAN PUBLIC ACT 451 PART 91	EARTH CHANGING ACTIVITY GREATER THAN ONE ACRE	MCDC

TABLE 5. ENGINEERING PARAMETERS USED IN 2009-2013 SLOPE STABILITY ANALYSES (NOTES 10 AND 11)

UNIT	TOTAL UNIT WEIGHT (PCF)	EFFECTIVE FRICTION ANGLE (DEGREE)	EFFECTIVE COHESION (PSF)	UNRAINED SHEAR STRENGTH (PSF)
EMBANKMENT	133	31	160	725 FOR P ≤ 1500 PSF
SUBGRADE	137	31	160	725+0.8(P-1500) FOR P > 1500 PSF
ASH	100	30	0	-
COARSE AGGREGATE	130	45	0	-

NOTE: "P" IS THE EFFECTIVE CONSOLIDATION STRESS.

TABLE 6. ERECTION SPECIFICATIONS FOR EACH CONSTRUCTION YEAR

CONSTRUCTION YEAR	DTE DOCUMENT #
2009	MONPP-ES-1000-09
2010	MONPP-ES-1006-09
2011	MONPP-ES-1123-11
2012	MONPP-ES-1133-12
2013	MONPP-ES-1133-12-REV.A
2017	MONPP-ES-1252-17
2019	MONPP-ES-0010-18

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OPERATIONS PLAN

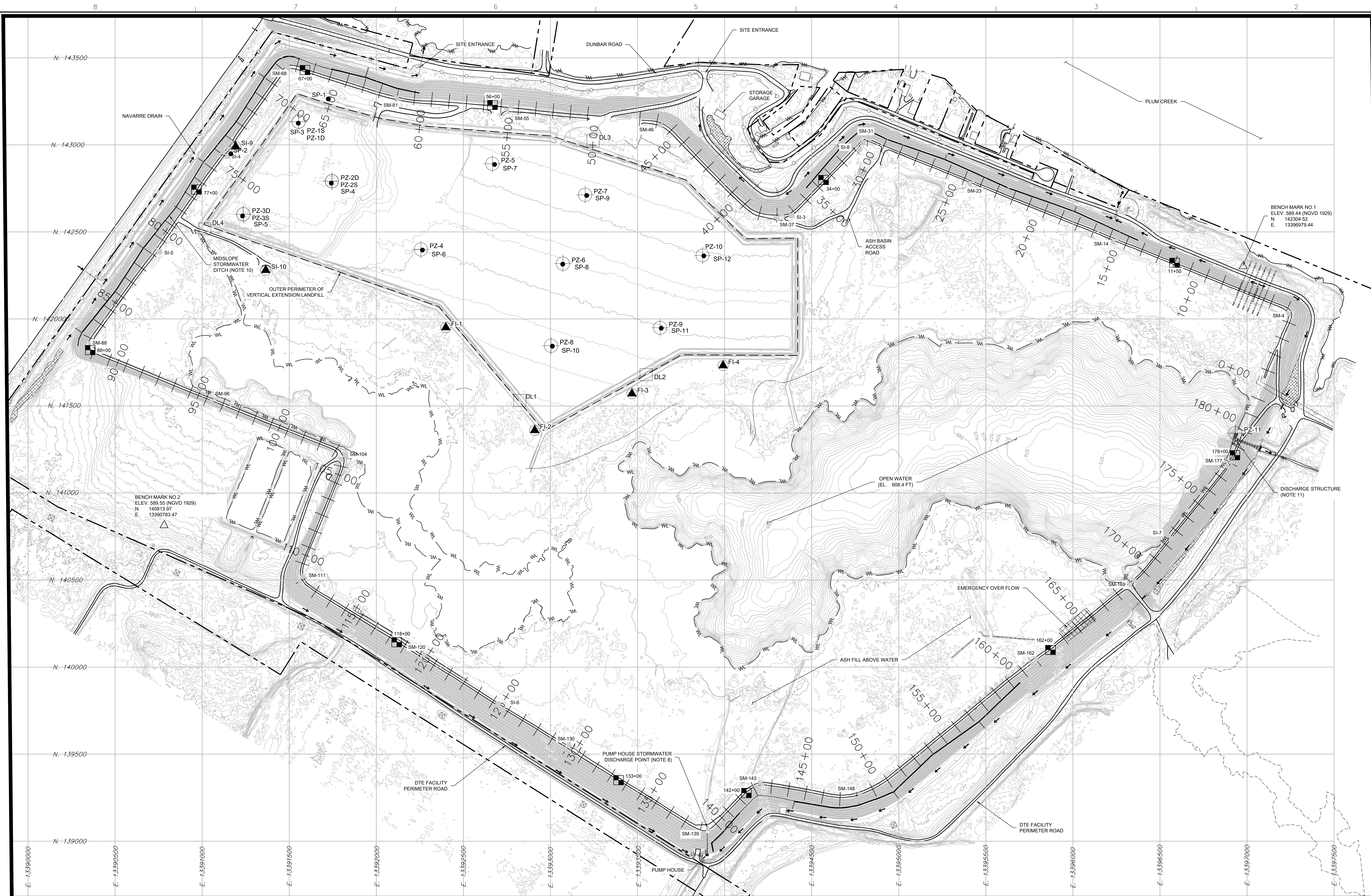
The Detroit Edison Co. Engineering

DESIGN CRITERIA SUMMARY

MONROE POWER PLANT

ENGINEERING SUPPORT ORGANIZATION

0695-C-H-0243-002-REV.D



- ### LEGEND
- PROPERTY BOUNDARY
 - DRAINAGE DIRECTION
 - CULVERT
 - BENCHMARK LOCATION
 - FENCE
 - WATER LINE
 - SM-4 DECOMMISSIONED SURFACE MONUMENT - STATION #
 - SI-5 DECOMMISSIONED INACTIVE SLOPE INCLINOMETER - # (NOTE 2)
 - 56+00 SAA SLOPE INCLINOMETER - # (NOTE 1)
 - PZ-6 VERTICAL EXTENSION LANDFILL PIEZOMETER - #
 - DL1 DATALOGGER FOR VERTICAL EXTENSION LANDFILL PIEZOMETERS - #
 - SETTLEMENT PLATES - #
 - INCLINOMETERS - #

- ### NOTES:
- 1) INSPECT, MONITOR AND MAINTAIN THE ACTIVE SAA SLOPE INCLINOMETERS AND PIEZOMETERS. IN ACCORDANCE WITH DOCUMENT MONPP-1301-REV D, CURRENTLY ACTIVE INSTRUMENTS ARE PART OF THE CONTINUOUS MONITORING SYSTEM. MONPP-1301-REV D PROVIDES DETAILED INFORMATION ON THE CONTINUOUS MONITORING SYSTEM. SURFACE MONUMENTS SI-2 AND SI-3 HAVE BEEN DECOMMISSIONED. SI-2 IS NEXT TO SM-31 AT STATION 31+00. SI-4 THROUGH SI-8 ARE INACTIVE. TABLE 8 PROVIDES TOP OF CASING AND GROUND ELEVATION FOR INACTIVE SLOPE INCLINOMETERS.
 - 2) A 4.4 FT X 4.4 FT CONCRETE PAD WAS CONSTRUCTED OVER SI-7 AND SURFACE MONUMENTS LOCATED AT THE PERIMETER DIKE ROAD.
 - 3) DTE SURVEYING SERVICES SHALL PROVIDE INSTRUCTIONS AND GUIDELINES TO THE CONTRACTOR FOR ANY CONSTRUCTION ACTIVITY THAT REQUIRES HANDLING OF THE INSTRUMENTS AND THAT IS PERFORMED IN THE IMMEDIATE VICINITY OF THE INSTRUMENTS.
 - 4) THE PLANT IS RESPONSIBLE FOR MAINTAINING AND RUNNING THE INSPECTION, MONITORING AND MAINTENANCE PROGRAM. ESO IS RESPONSIBLE FOR ASSISTING THE PLANT AS NEEDED.
 - 5) INSPECT, MONITOR AND MAINTAIN THE ASH BASIN STRUCTURES IN ACCORDANCE WITH DOCUMENT MONPP-1301-REV D.
 - 6) THE ASH BASIN STRUCTURES HAVE BEEN INSPECTED, MONITORED AND MAINTAINED QUARTERLY FROM 2009 TO 2014. ALL QUARTERLY INSPECTION REPORTS HAVE BEEN COMPILED IN ANNUAL INSPECTION REPORTS. THE LONG-TERM INSPECTION, MONITORING AND MAINTENANCE PROGRAM STARTED IN 2015.
 - 7) THE STORMWATER DISCHARGE PIPE OUTLET AT STATION 139+00 SHALL BE INSPECTED AND MAINTAINED REGULARLY SO THAT THE DISCHARGED STORMWATER FLOWS FREELY INTO THE ASH BASIN OPEN WATER AREA AND DOES NOT LOCALLY CAUSE A BUILD UP OF THE WATER LEVEL THAT COULD LEAD TO OVERTOPPING THE EMBANKMENT.
 - 8) THE SLURRY DISCHARGE POINT SHALL BE INSPECTED AND MAINTAINED REGULARLY SO THAT THE SLURRY DISCHARGE FLOWS FREELY INTO THE ASH BASIN OPEN WATER AREA.
 - 9) MAINTAIN THE MIDSLOPE STORMWATER DITCH AS NECESSARY IN ACCORDANCE WITH MONPP-1301-REV D.
 - 10) THERE IS A STAFF GAUGE AT THE DISCHARGE STRUCTURE (IN NGVD29 DATUM). THE READING CORRESPONDS TO THE PZ-11 READING CORRECTED FOR BAROMETRIC PRESSURE.

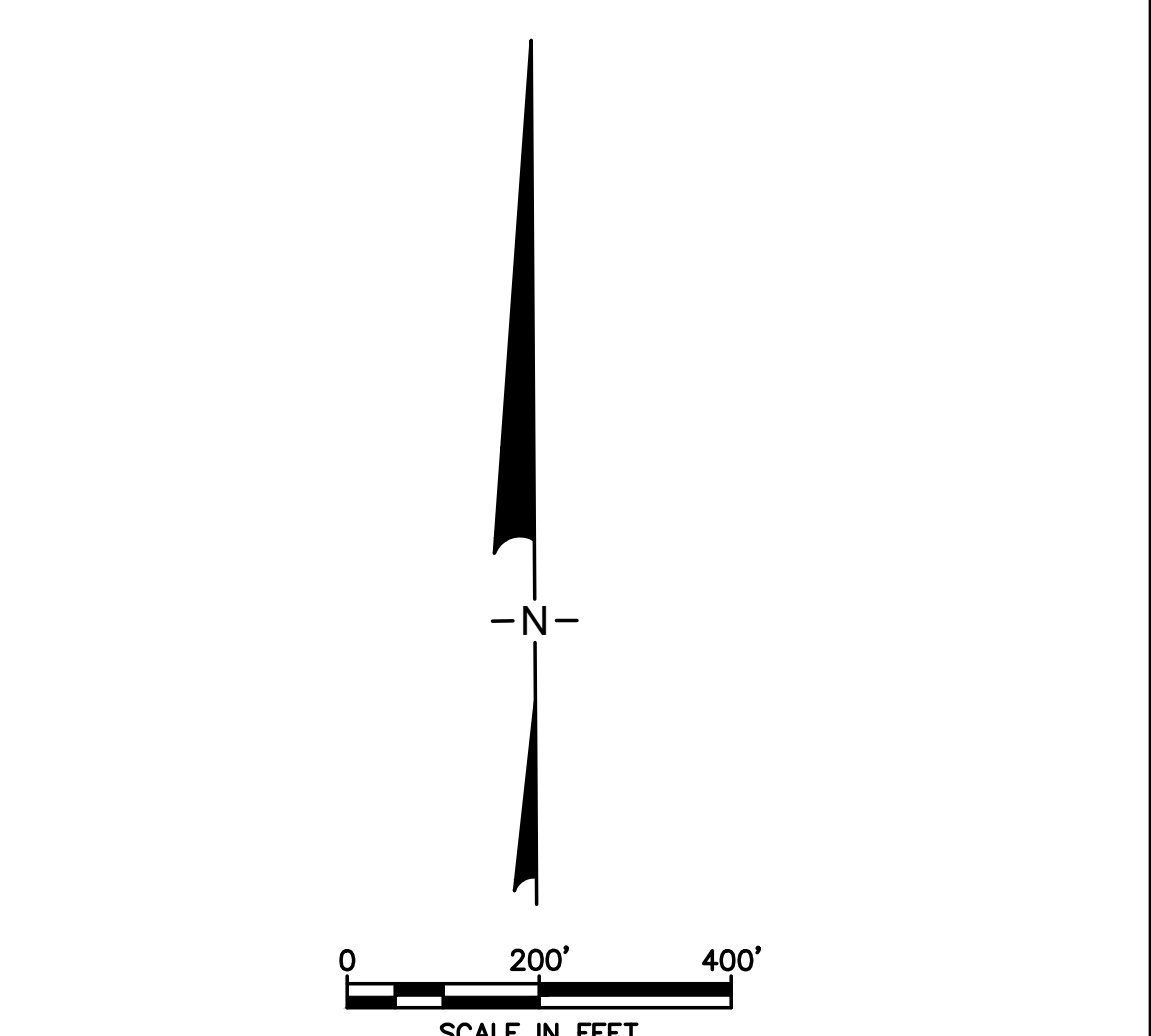


TABLE 7. SUMMARY OF DOCUMENTS REFERRED TO IN THE OPERATIONS PLAN DRAWINGS

REPORT CONTENT	DOCUMENT #
ASH BASIN EMBANKMENT ASSESSMENT REPORT	MONPP-0089-09
TECHNICAL REPORT - MONROE FLY ASH DISPOSAL BASIN	MONPP-0144-77
INSPECTION MONITORING AND MAINTENANCE MANUAL	MONPP-1301-REV. D
2009 CONSTRUCTION COMPLETION REPORT	MONPP-0134-9
2010 CONSTRUCTION COMPLETION REPORT	MONPP-0113-10
2011 CONSTRUCTION COMPLETION REPORT	MONPP-0132-11
2012 CONSTRUCTION COMPLETION REPORT	MONPP-0129-12
2013 CONSTRUCTION COMPLETION REPORT	MONPP-0147-13
2017 CONSTRUCTION COMPLETION REPORT	MONPP-PCR-0001-17
2019 DRAFT CONSTRUCTION COMPLETION REPORT	-
DECOMMISSIONED DISCHARGE PIPES INSPECTION REPORT	MONPP-0143-12
DECOMMISSIONED DISCHARGE PIPE ABANDONMENT PROCEDURE	MONPP-0146-12
FUNCTIONAL SYSTEM DESCRIPTION FOR THE CONTINUOUS MONITORING SYSTEM	MONPP-FSD-0131
2017 FILL PLAN	MONPP-0154-15
GLOBAL STABILITY OF THE EXISTING EMBANKMENT - REV1	MONPP-0118-11
FUGITIVE DUST CONTROL PLAN	-
GEOTECHNICAL SITE CHARACTERIZATION REPORT	MONPP-0135-10
RAPID DRAWDOWN ANALYSIS	MONPP-0153-13
MIDSLOPE STORMWATER DITCH REPAIR PLAN	MONPP-1304
HISTORY OF CONSTRUCTION	MONPP-0168
HAZARD POTENTIAL LETTER	MONPP-0118-16
HYDRAULIC CAPACITY ASSESSMENT	MONPP-0119-16
SAFETY FACTOR ASSESSMENT	MONPP-0120-16
STRUCTURAL STABILITY LETTER	MONPP-0121-16
CREST STABILITY MEMO - REV. 3	-
EMERGENCY ACTION PLAN - REV.2	-

TABLE 7 (CONTINUED). SUMMARY OF DRAWINGS REFERRED TO IN THE OPERATIONS PLAN DRAWINGS

DRAWING CONTENT	DOCUMENT #
PROPERTY BOUNDARY FOR THE GREATER MONROE ASH BASIN AREA	0695-3MS-D
PROPERTY BOUNDARY AND PROPERTY INFORMATION FOR THE MONROE ASH BASIN AREA	0695-3MS-B
ACTIVE DISCHARGE STRUCTURE STOPLOG DETAILS	0695-A02-0198
ACTIVE DISCHARGE STRUCTURE DETAILS	0695-C-W-0056
ACTIVE DISCHARGE STRUCTURE DETAILS	0695-C-W-0057
FINAL DISCHARGE STRUCTURE DRAWING	0695-C-W-0056-1
DISCHARGE CHANNEL DETAILS	0695-C-W-0050
DECOMMISSIONED DISCHARGE STRUCTURE DETAILS	0695-A-H-0007-H
DESIGN DETAIL FOR ASH BASIN ACCESS ROAD AT STATION 38+00	0695-C-H-0148
PUMP HOUSE AS-BUILT DETAILS	0695-C-H-0200

TABLE 8. SUMMARY OF MANUAL SLOPE INCLINOMETERS FOR THE ASH BASIN EMBANKMENT

SI-#	TOP OF CASING (FT)	GROUND ELEV. (FT)
SI-4	615.1	614.5
SI-5	616.1	614.5
SI-6	616.7	614.9
SI-7	613.8	615.0
SI-8	616.9	614.5



Vendor: GEOSYNTEC CONSULTANTS-CHE8242H30P

OPERATIONS PLAN

The Detroit Edison Co. Engineering

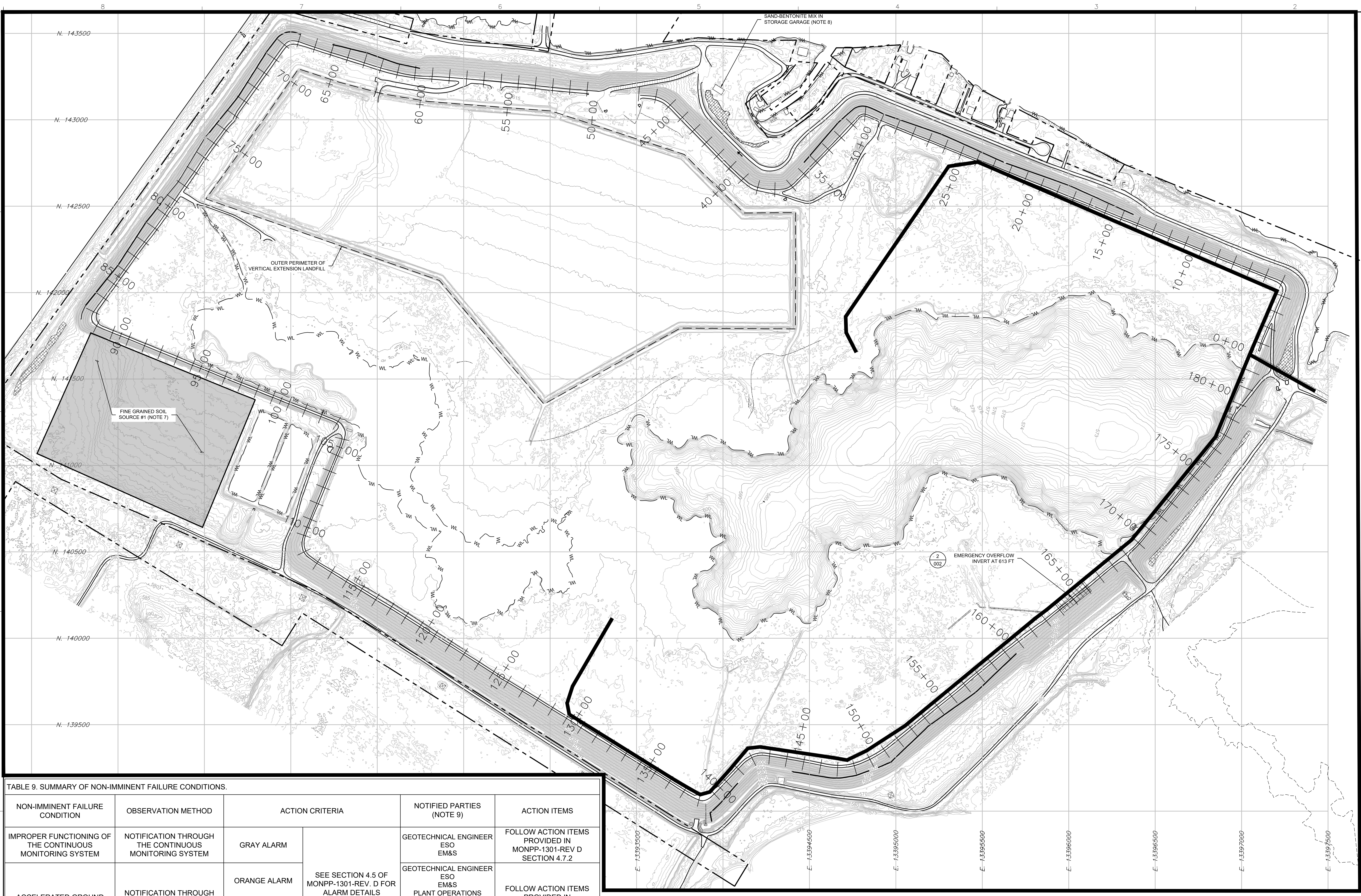
INSTRUMENTATION AND INSPECTION PLAN

DATE				DATE			
DESIGNED BY	DATE	DESIGNED BY	DATE	DESIGNED BY	DATE	DESIGNED BY	DATE
OB	12/14/12	OB	12/14/12	OB	12/14/12	OB	12/14/12
DR	12/14/12	DR	12/14/12	DR	12/14/12	DR	12/14/12
CHKD	12/14/12	CHKD	12/14/12	CHKD	12/14/12	CHKD	12/14/12
APPV	12/14/12	APPV	12/14/12	APPV	12/14/12	APPV	12/14/12
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE

MADE BY: DATE: INC: ELEC: PROJECT: DATE: UNIT NUMBER: MONROE POWER PLANT

CHK'D BY: DATE: MECH: INSTRUM: DATE: ENGINEERING SUPPORT ORGANIZATION

APPV'D BY: DATE: INC: PROJECT: DATE: PROJECT MANAGER: 0695-C-H-0243-003-REV D



LEGEND

- PROPERTY BOUNDARY
- ACTIVE SLURRY PIPELINES
- WATER LINE
- UPLAND AREA BOUNDARY
- INACTIVE PIPE
- WETLAND

- NOTES:**
- THIS DRAWING PROVIDES RESPONSE PLAN TO ADDRESS CONDITIONS THAT MAY POTENTIALLY CAUSE UNSATISFACTORY PERFORMANCE OF THE ASH BASIN FACILITY, SPECIFICALLY UNCONTROLLED RELEASE OF SLURRY WATER OR ASH.
 - THIS DRAWING FOCUSES ON CONDITIONS THAT ARE CONSIDERED TO BE "NON-IMMINENT FAILURE CONDITIONS" PER THE EMERGENCY ACTION PLAN. NON-IMMINENT FAILURE CONDITIONS ARE THOSE THAT ARE NOT A CONCERN FOR THE IMMEDIATE STABILITY OF EMBANKMENT BUT MAY BECOME A CONCERN IF NOT ADDRESSED IN A REASONABLE TIMEFRAME.
 - THE TWO MAIN MECHANISMS THAT HAVE THE MOST LIKELIHOOD OF CAUSING UNSATISFACTORY CONDITIONS ARE: (I) OVERTOPPING, AND (II) EMBANKMENT FAILURE. DOCUMENT MONPP-018-16 PROVIDES MORE INFORMATION ON THE LIKELIHOOD OF THESE TWO MECHANISMS. IF NOT ADDRESSED, OVERTOPPING WOULD INITIATE AT STATION 165+00, WHERE THE EMBANKMENT CREST IS AT ELEVATION 613 FT, WHICH IS 1.5 TO 2.5 FT LOWER THAN REST OF THE EMBANKMENT CREST. ALL ELEVATIONS PROVIDED IN THIS DRAWING SET IS IN NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29) DATUM.
 - IN ADDITION TO OVERTOPPING AND EMBANKMENT FAILURE, TWO ADDITIONAL CONDITIONS ARE CONSIDERED. THESE INCLUDE: (I) HIGH PORE WATER PRESSURES GENERATED WITHIN THE ASH UNDER THE FOOTPRINT OF THE VERTICAL EXTENSION LANDFILL WHICH CAN CREATE FAILURE THAT MAY CAUSE ASH RELEASE, AND (II) RUPTURE IN THE SLURRY LINES ALONG THE EMBANKMENT, WHICH CAN CREATE A DEEP GULLY IN THE EMBANKMENT IN A SHORT PERIOD OF TIME (IN SEVERAL HOURS) AND CAUSE UNCONTROLLED RELEASE OF ASH FROM BEHIND THE EMBANKMENT.
 - TABLE 9 SUMMARIZES THE NON-IMMINENT FAILURE CONDITIONS, HOW IT MAY BE OBSERVED, AND HOW TO ADDRESS THE CONDITIONS.
 - THIS DRAWING PROVIDES DIFFERENT TYPES OF MATERIAL THAT ARE AVAILABLE ON-SITE TO ADDRESS VARIOUS NON-IMMINENT FAILURE CONDITIONS, AS WELL AS IMMINENT FAILURE CONDITIONS IF NEEDED.
 - FINE-GRAINED SOIL SOURCE #1 IS THE LEFT-OVER SOIL FROM THE ORIGINAL CONSTRUCTION. THERE IS APPROXIMATELY 250,000 CY OF SOIL DOWN TO ELEVATION 585 FT.
 - AT A MINIMUM FIVE 5-GALLON BUCKET FULL OF SAND-BENTONITE MIX SHALL BE AVAILABLE FOR MITIGATING CRACKS. FUEL SUPPLY IS RESPONSIBLE FOR PREPARING THE SAND-BENTONITE MIX. DETAILS OF SAND-BENTONITE MIX IS PROVIDED IN MONPP-1301-REV. D, SECTION 6.4.
 - THE NAMES OF SPECIFIC PERSONNEL FOR THE CONTINUOUS MONITORING SYSTEM ARE KEPT UP TO DATE, AND PROVIDED IN THE MONTHLY INSTRUMENTATION UPDATE REPORTS.

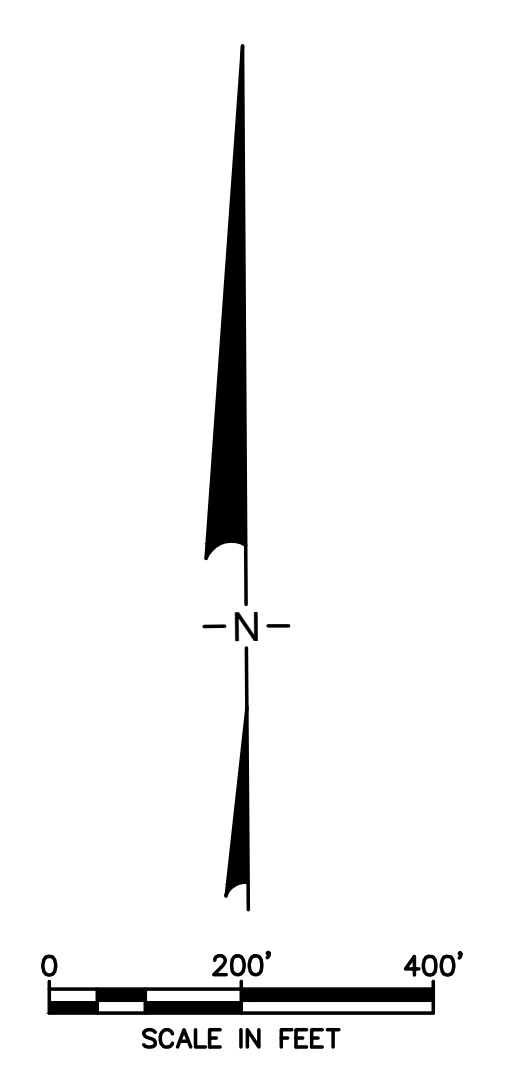


TABLE 9. SUMMARY OF NON-IMMINENT FAILURE CONDITIONS.

NON-IMMINENT FAILURE CONDITION	OBSERVATION METHOD	ACTION CRITERIA		NOTIFIED PARTIES (NOTE 9)	ACTION ITEMS
		ALARM LEVEL	CRITERIA		
IMPROPER FUNCTIONING OF THE CONTINUOUS MONITORING SYSTEM	NOTIFICATION THROUGH THE CONTINUOUS MONITORING SYSTEM	GRAY ALARM	SEE SECTION 4.5 OF MONPP-1301-REV. D FOR ALARM DETAILS	GEOTECHNICAL ENGINEER ESO EM&S	FOLLOW ACTION ITEMS PROVIDED IN MONPP-1301-REV D SECTION 4.7.2
ACCELERATED GROUND MOVEMENTS	NOTIFICATION THROUGH THE CONTINUOUS MONITORING SYSTEM	ORANGE ALARM		GEOTECHNICAL ENGINEER ESO EM&S	FOLLOW ACTION ITEMS PROVIDED IN MONPP-1301-REV D SECTION 4.7.3
		YELLOW ALARM		PLANT OPERATIONS CONTROL ROOM GEOTECHNICAL ENGINEER ESO EM&S PLANT OPERATIONS	
SURFICIAL CRACKS ON EMBANKMENT	VISUAL OBSERVATION	CRACK THAT HAVE ONE INCH WIDTH OR GREATER		ESO EM&S PLANT OPERATIONS	PERFORM MAINTENANCE PER MONPP-1301-REV D, SECTION 6.4
SLURRY LINE RUPTURE ALONG THE EMBANKMENT	VISUAL OBSERVATION	RUPTURED SLURRY LINE ALONG THE EMBANKMENT		CONTROL ROOM GEOTECHNICAL ENGINEER ESO EM&S PLANT OPERATIONS	FOLLOW ACTION ITEMS PROVIDED IN JIT B-18-013
HIGH PORE PRESSURES UNDER THE VERTICAL EXTENSION LANDFILL	NOTIFICATION THROUGH THE CONTINUOUS MONITORING SYSTEM	ORANGE ALARM	SEE TABLE 4.2 OF MONPP-1301-REV. D FOR ALARM DETAILS	GEOTECHNICAL ENGINEER ESO EM&S	FOLLOW ACTION ITEMS PROVIDED IN MONPP-1301-REV D., SECTION 4.7.4
		YELLOW ALARM		PLANT OPERATIONS CONTROL ROOM GEOTECHNICAL ENGINEER ESO EM&S PLANT OPERATIONS	
		RED ALARM		CONTROL ROOM GEOTECHNICAL ENGINEER ESO EM&S PLANT OPERATIONS	
UNEXPECTEDLY HIGH WATER LEVELS	VISUAL OBSERVATION	OPEN WATER ELEVATION AT 610 FT OR HIGHER		CONTROL ROOM GEOTECHNICAL ENGINEER ESO EM&S PLANT OPERATIONS	FOLLOW ACTION ITEMS PROVIDED IN JIT B-18-013
	NOTIFICATION THROUGH THE CONTINUOUS MONITORING SYSTEM	YELLOW ALARM OPEN WATER ELEVATION AT 610 FT OR HIGHER		GEOTECHNICAL ENGINEER ESO EM&S PLANT OPERATIONS	

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(312) 616-0500

Vendor: GEOSYNTEC CONSULTANTS-CHE8243A

OPERATIONS PLAN

The Detroit Edison Co. Engineering

SIGNATURE _____

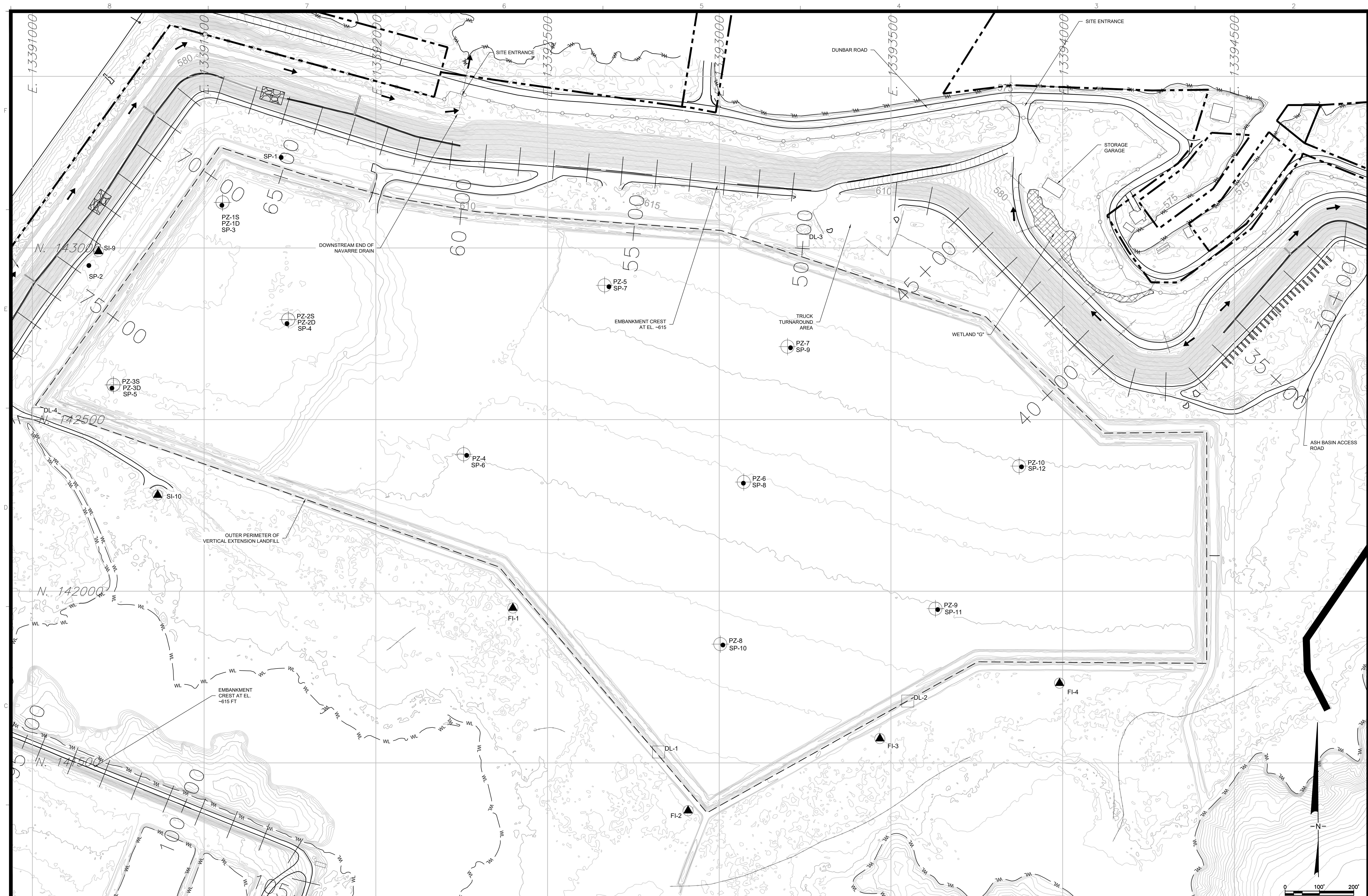
RESPONSE FOR NON-IMMINENT FAILURE CONDITIONS

MONROE POWER PLANT

ENGINEERING SUPPORT ORGANIZATION

0695-C41-0243-004-REV D

PROLOG		PROLOG		DATE		DETROIT EDISON APPROVALS		DATE		OTHER APPROVALS		DATE		DESIGNED BY		DATE	
OB	JS	09/17/21				FOG GEN				VERIFIER				OB	12/14/12		
2021 UPDATE						FOG GEN				ARCH				OB	12/14/12		
						FOG GEN				DMC				CHKD BY			
						FOG GEN				MECH				APPROVED BY			
						DRN								JPS	2/9/13		
						DRN								PROJECT ENGINEER			
						TRNGT				ELCC				ORIGINATING SOURCE			
						TRNGT								ENGINEERING SUPPORT ORGANIZATION			
						TRNGT								SCALE			
						TRNGT								DO NOT SCALE			
						TRNGT								DRAWING NUMBER			
						TRNGT								0695-C41-0243-004-REV D			



- ### LEGEND
- PROPERTY BOUNDARY
 - ACTIVE SLURRY PIPELINES
 - DRAINAGE DIRECTION
 - CULVERT
 - △ BENCHMARK LOCATION
 - ⊕ ELECTRIC TOWER
 - ⊕ ELECTRIC POLE
 - UNDERGROUND ELECTRIC LINE (NOTE 18)
 - CONSUMERS ENERGY ELECTRIC LINES
 - ITC ELECTRIC LINES
 - RIGHT OF WAY
 - FENCE
 - INACTIVE PIPE
 - WETLAND
 - WL WATER LINE
 - UPLAND AREA BOUNDARY
 - ⊕ VEHICLE CROSSING
 - ⊕ VERTICAL EXTENSION LANDFILL PIEZOMETER - #
 - DL-1 DATALOGGER FOR VERTICAL EXTENSION LANDFILL PIEZOMETER - #
 - SP-12 SETTLEMENT PLATE - #
 - ▲ FI-3 INCLINOMETER - #

1. THE OPERATIONAL PROCEDURES PROVIDED IN THIS DRAWING ARE BASED ON OPERATIONS, MONITORING AND ACTION PLAN DATED APRIL 2019, PREPARED BY GOLDER ASSOCIATES FOR THE VERTICAL EXTENSION LANDFILL.

2. WHEN THE ASH BASIN IS RECEIVING CCR, THE NORMAL GATE HOURS FOR THE VERTICAL EXTENSION LANDFILL WILL GENERALLY OCCUR FROM 7:00 AM TO 4:30 PM, MONDAY THROUGH FRIDAY. HOWEVER, THE ASH BASIN DOES NOT RECEIVE CCR DAILY. OPERATIONAL HOURS MAY BE ADJUSTED TO ACCOMMODATE SPECIAL CIRCUMSTANCES, SUCH AS CONSTRUCTION ACCESS TO AND USE OF THE VERTICAL EXTENSION LANDFILL WILL BE CONTROLLED BY ARTIFICIAL BARRIERS INCLUDING GATES, FENCING, SIGNS, AND NATURAL BARRIERS INCLUDING BERMS AND VEGETATION. OUTSIDE OF NORMAL GATE HOURS, ONLY AUTHORIZED FACILITY PERSONNEL WILL BE PERMITTED ON SITE FOR OPERATIONAL MAINTENANCE AND MONITORING PURPOSES.

3. CCR HAULING WILL CONTINUE TO ACCESS THE VERTICAL EXTENSION LANDFILL FROM THE NORTH SITE ENTRANCE VIA DUNBAR ROAD IN MONROE, MICHIGAN. HAULING WILL BE PERFORMED USING STANDARD DUMP TRUCKS SUITABLE AND LICENSED FOR HIGHWAY TRAVEL. OPERATIONS WILL BE MANAGED TO MINIMIZE THE POTENTIAL FOR CREATION OF NUISANCE CONDITIONS, INCLUDING:

- DUST MAY BE GENERATED FROM THE STRIPPING AND PLACEMENT OF SOIL MATERIALS, THE PLACEMENT AND COMPACTION OF CCR, THE VEHICULAR TRAFFIC ON ACCESS ROADS, AND BY WIND OVER BARREN AREAS. FUGITIVE DUST WILL BE CONTROLLED THROUGH THE USE OF ROAD GRADING AND MAINTENANCE, AND WATER FOR DUST SUPPRESSION ON SITE ACCESS ROADS. ADDITIONAL INFORMATION IS IN THE FACILITY FUGITIVE DUST CONTROL PLAN.
- NUISANCE ODORS FROM THE VERTICAL EXTENSION LANDFILL ARE NOT ANTICIPATED BECAUSE ON A WASTE STREAM OF LOW-HAZARD INDUSTRIAL CCR.
- NOISE FROM OPERATIONS AT THE VERTICAL EXTENSION LANDFILL SHALL BE MINIMIZED. EQUIPMENT USED ON SITE WILL HAVE PROPER MUFFLERS AND WILL BE MAINTAINED IN GOOD OPERATING CONDITION. SIGNIFICANT NOISE GENERATION WILL BE LIMITED TO PERIODS OF CONSTRUCTION. IN ADDITION, THE VERTICAL EXTENSION LANDFILL IS APPROXIMATELY 1/4 MILE FROM ANY RESIDENCE OR BUSINESS. THIS SETBACK FROM NEARBY ROADS AND RESIDENCES, AS WELL AS THE NATURAL SCREENING FROM THE ASH BASIN, WILL BE MAINTAINED TO REDUCE NOISE TRANSMISSION.
- SETTLEMENT PLATES AT THE VERTICAL EXTENSION LANDFILL ARE NOT ANTICIPATED BECAUSE THE SOLID WASTE STREAM OF LOW-HAZARD INDUSTRIAL CCR ARE NON-PETROLEUM-BASED. EQUIPMENT USED ON SITE WILL HAVE PROPER MUFFLERS AND WILL BE MAINTAINED IN GOOD OPERATING CONDITION. SIGNIFICANT NOISE GENERATION WILL BE LIMITED TO PERIODS OF CONSTRUCTION. IN ADDITION, THE VERTICAL EXTENSION LANDFILL IS APPROXIMATELY 1/4 MILE FROM ANY RESIDENCE OR BUSINESS. THIS SETBACK FROM NEARBY ROADS AND RESIDENCES, AS WELL AS THE NATURAL SCREENING FROM THE ASH BASIN, WILL BE MAINTAINED TO REDUCE NOISE TRANSMISSION.

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7. IN THE EVENT OF SNOW COVER, THE EDGES OF ROADWAYS, CULVERTS, AND MONITORING WELLS WILL BE MARKED BY STAKES OR FLAGS, IF REQUIRED, DUE TO SNOW DEPTHS AND PLOWING NEEDS. SNOW AND OTHER HEAVY EQUIPMENT WILL BE USED TO CLEAR THE ACCESS ROADS.

8. IN THE EVENT OF DRY AND WINDY WEATHER, DUST WILL BE SUPPRESSED BY WETTING ROADS WITH WATER OR, WITH EGLE APPROVAL, COMMERCIALY AVAILABLE DUST SUPPRESSANT COMPOUNDS. BLOWING OF CCR MATERIALS IN THE ACTIVE FILLING AREAS WILL BE CONTROLLED BY WETTING WITH WATER, OTHER APPROPRIATE MATERIAL, SOIL, OR AN EGLE-APPROVED, COMMERCIALY AVAILABLE COMPOUND.

9. CCR MATERIAL PLACED INTO THE VERTICAL EXTENSION LANDFILL MAY BE RECLAIMED AS SALEABLE MATERIAL AS LONG AS THE INTEGRITY OF THE OVERLINER IS MAINTAINED DURING RECLAMATION ACTIVITIES. ADDITIONALLY, FINANCIAL ASSURANCE IS REQUIRED TO BE MAINTAINED ANNUALLY FOR THE NET AMOUNT OF CCR MATERIAL PLACED INTO THE VERTICAL EXTENSION. THE FINANCIAL ASSURANCE MUST BE ADJUSTED TO ACCOUNT FOR THE NET INCREASE OF CCR MATERIAL PLACED INTO THE VERTICAL EXTENSION THROUGHOUT THE FISCAL YEAR. AN ANNUAL VALUATION OF THE FINANCIAL ASSURANCE WILL BE PROVIDED TO EGLE WITHIN 30 DAYS OF THE CLOSE OF THE STATE OF MICHIGAN'S FISCAL YEAR.

10. MATERIAL THAT ARE APPROVED FOR DISPOSAL IN THE VERTICAL EXTENSION INCLUDE:

- BOTTOM ASH
- FLY ASH. BLENDS INCLUDE POWDER RIVER BASIN (PRB) COAL ASH, EASTERN COAL ASH, AND UP TO 10% BY WEIGHT, PETROLEUM COKE (PET COKE)
- FLUE GAS DESULFURIZATION (FGD) SCRUBBER WASTEWATER SLUDGE, MIXED WITH FLY ASH OR BOTTOM ASH
- SYNTHETIC GYPSUM
- INERT MATERIALS (BOTTOM ASH IS CONSIDERED INERT MATERIAL AND WAS USED FOR THE OVERLINER AS A FUNCTIONAL PORE PRESSURE RELIEF LAYER)
- ANY OTHER WASTE ALLOWED BY APPLICABLE REGULATIONS OR OBTAINED THROUGH SPECIFIC REGULATORY APPROVAL

11. FILLING SHOULD BE PERFORMED IN GENERAL ACCORDANCE WITH THE FOLLOWING:

- MAXIMUM EXTERNAL INTERIM SIDE SLOPES OF 3H:1V
- CCR MATERIALS SHALL BE TYPED AS CLOSE AS POSSIBLE TO THE WORKING FACE
- UTILIZE DOZERS TO TRACK-IN MATERIAL IN 2 TO 3 FT THICK LIFTS FOR A MINIMUM OF 2 COMPACTED LIFTS FOR EACH 5-FT VERTICAL PLACEMENT, AND A MAXIMUM OF 450 FEET WIDE
- LIFTS SHOULD BE GRADED TO SLOPE DOWN TOWARDS THE PERIMETER BERM.
- FILLING RATE SHOULD NOT EXCEED 25-FT VERTICAL YEAR WITHIN THE VERTICAL EXTENSION LANDFILL, NOR EXCEED MORE THAN 8 FT VERTICAL MONTH IN A GIVEN AREA.
- FOLLOW THE GEOTECHNICAL MONITORING PLAN DURING FILLING WHICH INCLUDES COLLECTING AND ANALYZING READINGS FROM PIEZOMETERS, INCLINOMETERS, AND SETTLEMENT PLATES INSTALLED AT THE LANDFILL.
- HEAVY EQUIPMENT SHOULD NOT BE OPERATED DIRECTLY ON THE OVERLINER. A 2 TO 3 FT THICK LAYER OF WASTE SHOULD BE PLACED FIRST.
- BY THE 10TH OF EACH MONTH, A DISPOSAL INVENTORY REPORT WILL BE DISTRIBUTED TO THE CENTRAL REPORTING AGENCY (I.E. FUEL SUPPLY REPRESENTATIVE RESPONSIBLE FOR WASTE DATA TRACKING). THIS REPORT MUST BE COMPLETED AND SUBMITTED MONTHLY. IT WILL IDENTIFY THE SOURCE, TYPE, AND AMOUNT OF WASTE LANDFILLED AT THE VERTICAL EXTENSION. THIS INFORMATION WILL BE SHARED WITH EMS LANDFILL SITE DURING ANNUAL INSPECTIONS.
- DTE WILL EMPLOY APPROPRIATE PERSONNEL AT THE VERTICAL EXTENSION LANDFILL TO PROVIDE PROPER OPERATION IN ACCORDANCE WITH MICHIGAN REGULATIONS. INDIVIDUALS IN CHARGE OF THE FACILITY WILL HAVE AUTHORITY AND KNOWLEDGE TO MAKE AND IMPLEMENT DECISIONS REGARDING OPERATION OF THE FACILITY.
- DTE WILL KEEP RECORDS OF PERSONNEL TRAINING IN THE FACILITY OPERATING RECORDS AND WILL INCLUDE INFORMATION ON TRAINING IN THE ANNUAL REPORT. THIS WILL INCLUDE EMPLOYEE'S NAME, JOB TITLE, THE DATE AND TYPE OF TRAINING, AND ANNUAL UPDATE TRAINING INFORMATION. DTE EMPLOYEES AND CONTRACTOR PERSONNEL WILL BE TRAINED IN FACILITY EMERGENCIES AND BECOME FAMILIAR WITH EMERGENCY PROCEDURES, EQUIPMENT, AND SYSTEMS. SPECIFICALLY, TRAINING SHALL INCLUDE THE FOLLOWING:

- USE, INSPECTION, REPAIR, AND REPLACEMENT OF FACILITY EMERGENCY AND MONITORING EQUIPMENT
- OPERATION OF ALARM SYSTEMS
- FIRE AND EMERGENCY RESPONSE
- RESPONSE TO UNLIKELY FACILITY INSTABILITIES, SUCH AS EROSION AND INSTABILITY OF STRUCTURES OR MONITORING EQUIPMENT
- STRUCTURES AND MANAGEMENT OF CCR AUTHORIZED FOR DISPOSAL
- REJECTION OF CCR THAT IS NOT PERMITTED AT THE FACILITY
- RECORD KEEPING
- MOSHA HEALTH AND SAFETY REQUIREMENTS
- PERSONAL PROTECTIVE EQUIPMENT (PPE)
- EMERGENCY PROCEDURES
- THE FACILITY WILL RETAIN THE INFORMATION SUBMITTED TO ALL REGULATORY AGENCIES IN AN OPERATING RECORD OR IN SOME ALTERNATIVE LOCATION SPECIFIED BY THE REGULATORY AGENCIES. AT A MINIMUM, THE OPERATING RECORD SHALL CONTAIN THE FOLLOWING INFORMATION:

- ANY LOCATION RESTRICTION DEMONSTRATION
- INSPECTION RECORDS, TRAINING PROCEDURES, AND NOTIFICATION PROCEDURES
- ANY DEMONSTRATION, CERTIFICATION, MONITORING RESULTS, TESTING, OR ANALYTICAL DATA RELATING TO THE GROUNDWATER MONITORING PROGRAM
- CLOSURE AND POST-CLOSURE CARE PLANS AND ANY MONITORING
- ANY COST ESTIMATES AND FINANCIAL ASSURANCE DOCUMENTATION
- SOIL MANAGEMENT, PLACEMENT, AND COMPACTION OF INTERMEDIATE AND FINAL COVER

12. PROPERLY MAINTAINED EQUIPMENT OF ADEQUATE NUMBER, TYPE, AND SIZE WILL BE USED IN OPERATING THE LANDFILL PURSUANT TO ESTABLISHED ENGINEERING PRACTICES AND RULES ASSOCIATED WITH RULE 315 OF THE PART 115 SOLID WASTE MANAGEMENT RULES. THE FOLLOWING EQUIPMENT IS TYPICALLY ON-SITE AS PART OF CURRENT LANDFILL OPERATIONS AND IS USED TO MANAGE THE CCR WITHIN THE VERTICAL EXTENSION LANDFILL:

- BULLDOZER
- COMPACTOR
- WATER TRUCK
- IN THE EVENT THAT A PIECE OF EQUIPMENT SHOULD BREAK DOWN FOR AN EXTENDED PERIOD OF TIME, ARRANGEMENTS WILL BE MADE WITH A CONTRACTED SOURCE TO PROVIDE BACKUP EQUIPMENT UNTIL THE EQUIPMENT CAN BE REPAIRED OR REPLACED

13. INTERMEDIATE COVER MAY BE USED IN MANAGING DUST, CONTROLLING EROSION, SUPPORTING VEGETATION, AND IMPROVING STORM WATER QUALITY FROM THE LANDFILL SURFACE. WHILE THE DURATION FOR FILLING IS PROJECTED TO BE RELATIVELY SHORT, A PLAN FOR AN OPERATIONALLY EFFICIENT AND COST-EFFECTIVE INTERMEDIATE COVER COULD BE ESTABLISHED CONSIDERING THE AREAS OF EXISTING OPEN ACREAGE AND AREAS THAT WILL NEED TO BE CLOSED. INTERMEDIATE COVER OPTIONS INCLUDE:

- WATERING. THE USE OF CONTINUOUS WATERING/IRRIGATION MAY BE AN IMPORTANT PART OF CONTROLLING DUST IN ACTIVE FILL AREAS AND AREAS THAT HAVE BEEN FILLED AND ARE WAITING FOR MORE PERMANENT DUST CONTROL COVER. USE OF A WATER TRUCK IN ACCESSIBLE ACTIVE FILL AREAS IS IMPORTANT ON A DAILY BASIS TO CONTROL FUGITIVE DUST EMISSIONS FROM TRAFFIC AND RELATED PLACEMENT ACTIVITIES
- BOTTOM ASH COVER. BOTTOM ASH CAN LIMIT EROSION, PROVIDE DUST CONTROL, AND SUPPORT VEGETATION. A SIGNIFICANT BENEFIT OF USING BOTTOM ASH IS ITS ABILITY TO SUPPORT VEGETATION BY MIXING IN TOPSOIL, SEEDING, AND FERTILIZING. HOWEVER, VARIABILITY IN BOTTOM ASH PRODUCTION RATES FROM THE PLANT AND OTHER BENEFICIAL USES FOR THE MATERIAL MAY PROVIDE OPERATIONAL CHALLENGES FOR A CONSISTENT SUPPLY.

14. SOIL COVERS: SOIL COVER IS A COMMON MATERIAL USED FOR INTERMEDIATE COVER ON OTHER LANDFILLS. SOIL COVERS PROVIDE ADEQUATE PROTECTION AGAINST WIND AND EROSION AND CAN BE VEGETATED WITH THE ADDITION OF SEED, FERTILIZER, AND MULCH. CAUTION SHOULD BE TAKEN WITH OTHER SOIL TYPES SUCH AS SILT AND SHOULD HAVE ADEQUATE VEGETATION ESTABLISHED TO MINIMIZE SEDIMENT TRANSPORT. REMOVAL AND REPLACEMENT OF THE SOIL COVER MAY BE AN OPTION AS WITH BOTTOM ASH TO MINIMIZE MATERIAL COSTS. FLY ASH MAY BE USED AS COVER IF ADEQUATELY DUST CONTROLLED UNTIL VEGETATION IS ESTABLISHED.

15. CHEMICAL SPRAYS: CHEMICAL SPRAYS ARE GENERALLY A SHORT-TERM, TEMPORARY COVER OPTION BUT CAN BE EMPLOYED QUICKLY OVER RELATIVELY LARGE AREAS TO CONTROL DUST EMISSIONS AND EROSION OF THE ASH FILL. THE SPRAYS CAN BE VERY EFFECTIVE OVER SHORT PERIODS WITH PROPER APPLICATION AND MONITORING OF THE PERFORMANCE. HOWEVER, VARIOUS CHEMICAL SPRAYS SHOULD BE CAREFULLY EVALUATED PRIOR TO USE RELATIVE TO POTENTIAL IMPACTS ON GROUNDWATER MONITORING AND SURFACE WATER DISCHARGES FROM THE SITE. ADDITIONALLY, ANY CHEMICAL SPRAY NOT EXPLICITLY APPROVED BY THE EGLE WILL NEED PRIOR APPROVAL CURRENTLY, NO CHEMICAL SPRAYS ARE USED WITHIN THE VERTICAL EXTENSION OVERLINER AS A FUNCTIONAL PORE PRESSURE RELIEF LAYER.

16. CONTROL PRODUCTS MAY BE CONSIDERED FOR TEMPORARY COVER OVER PERIODS GENERALLY LESS THAN TWO YEARS. NUMEROUS PRODUCTS ARE AVAILABLE RANGING FROM NON-WOVEN GEOTEXTILES TO ROLLED EROSION CONTROL PRODUCTS MADE OF WOOD OR STRAW MATS. THESE MATERIALS CAN BE USED IN CONJUNCTION WITH SEEDING TO PROVIDE LONGER PERIODS OF COVER. USE OF EROSION BLANKETS TO REDUCE THE TIME TO STABILIZE INTERMEDIATE SLOPES WITH VEGETATION IS AN OPTION THAT DTE SHOULD UTILIZE WHERE APPROPRIATE DURING THE STAGED FILLING.

17. BASED ON THE ANALYSIS OF THE TEMPORARY COVERS PROVIDED ABOVE, IT APPEARS THAT BOTTOM ASH IS THE PREFERRED MATERIAL FOR TEMPORARY COVER. BOTTOM ASH IS GENERALLY AVAILABLE WITH COSTS LIMITED TO LABOR AND EQUIPMENT AND, ONCE VEGETATED, PROVIDES FOR ADEQUATE EROSION CONTROL FOR THE SITE OVER LONG DURATIONS. HOWEVER, CONTINGENCIES FOR USE OF SOILS, SPRAYS, GEOTEXTILES, AND EROSION CONTROL PRODUCTS SHOULD STILL BE PROVIDED.

18. THE PERIMETER CHANNEL IS THE DRAINAGE FEATURE THAT EXISTS AROUND THE ENTIRE PERIMETER OF THE VERTICAL EXTENSION. THE PERIMETER CHANNEL DRAINS TO THE CHANNEL PRESENTLY MAINTAINED FOR SLICING OPERATIONS. DUE TO THE SIZE OF THE VERTICAL EXTENSION, THE CHANNEL GRADES ARE RELATIVELY FLAT. WHILE IT IS RECOGNIZED THAT THE SLICED ASH IS PERMEABLE AND WATER WILL INFILTRATE, SEDIMENT WILL ACCUMULATE IN THE DITCH WHICH WILL REQUIRE MAINTENANCE. CHANNEL FUNCTION SHOULD BE CHECKED ANNUALLY AND CLEANED OUT MORE FREQUENTLY IF HEAVY SILTATION IS OCCURRING. DITCH GRADES SHOULD BE RESTORED TO APPROXIMATE DESIGN BOTTOM ELEVATIONS. EROSION IN THE FORM OF FILLING MAY OCCUR WITHIN THE CHANNEL BOTTOM. THIS IS ALSO UNDESIRABLE AND SHOULD BE MONITORED. IF FOUND IN THIS CONDITION, THE DITCH SHOULD BE REGRADED AND RESTORED TO AT OR NEAR DESIGN GRADES.

Vendor: GEOSYNTEC CONSULTANTS-CHE8242H3A

OPERATIONS PLAN

The Detroit Edison Co. Engineering

VERTICAL EXTENSION LANDFILL OPERATIONS PLAN

SIGNATURE		DATE	

PROJNO	PREPARED BY	DATE	DESCRIPTION
D	CB	25	10/04/21
2021 UPDATE			

NO.	DATE	BY	DESCRIPTION
1			

NO.	DATE	BY	DESCRIPTION
1			

LOCATION NAME: **MONROE POWER PLANT** UNIT NUMBER:

DRAWING NUMBER: **0695-C-H-0243-005-REV D** SCALE: **AS SHOWN**

DATE: **10/14/21**

DESIGNED BY: **CB**

CHECKED BY:

APPROVED BY:

PROJECT MANAGER:

ENGINEERING SUPPORT ORGANIZATION:

SCALE: **AS SHOWN**



154 NORTH LA SALLE STREET, SUITE 300
CHICAGO, IL 60606
(312) 898-0000

Vendor: GEOSYNTEC CONSULTANTS-CHE8242H3A

The Detroit Edison Co. Engineering

VERTICAL EXTENSION LANDFILL OPERATIONS PLAN

PROJNO	PREPARED BY	DATE	DESCRIPTION
D	CB	25	10/04/21
2021 UPDATE			

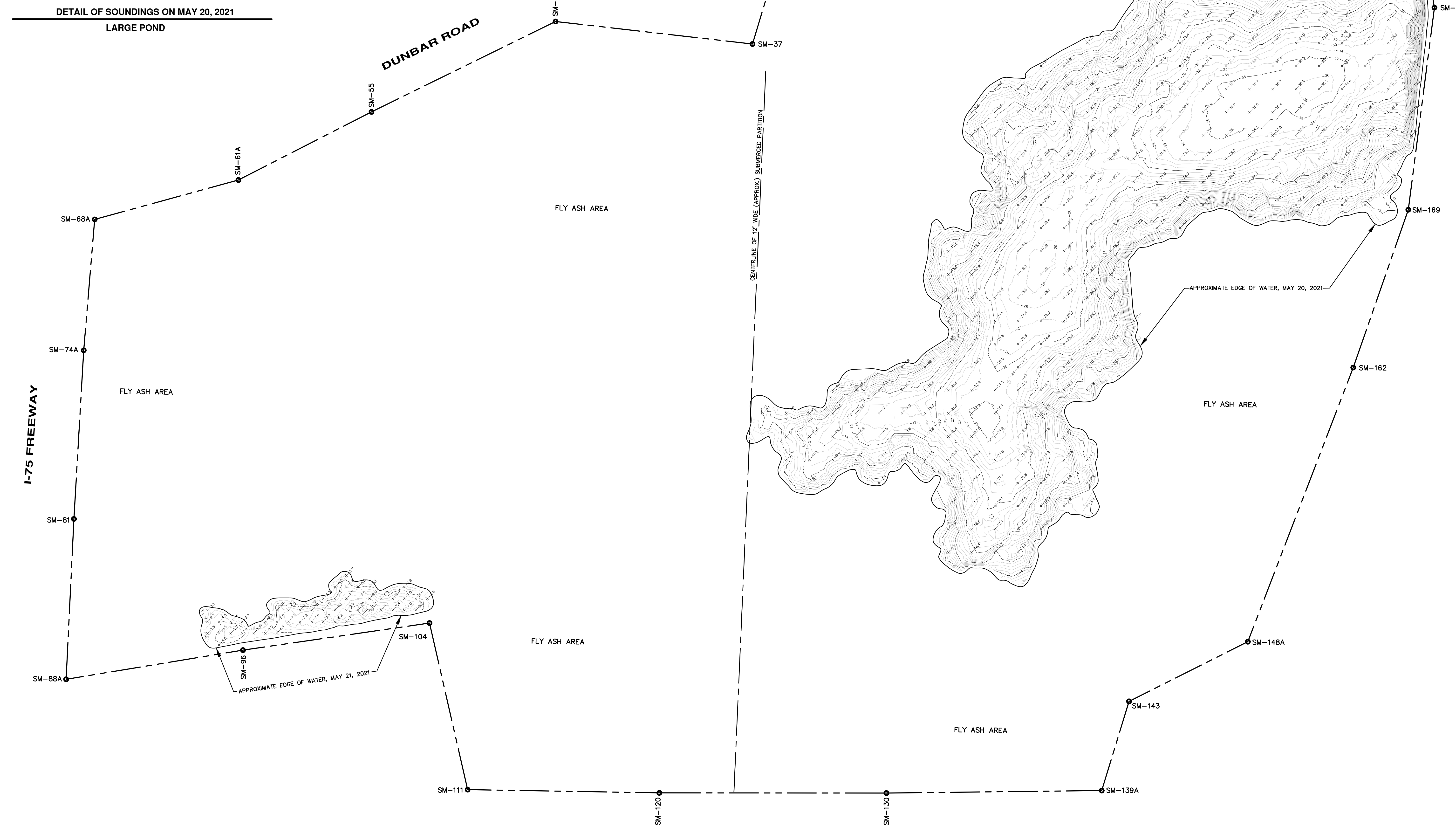
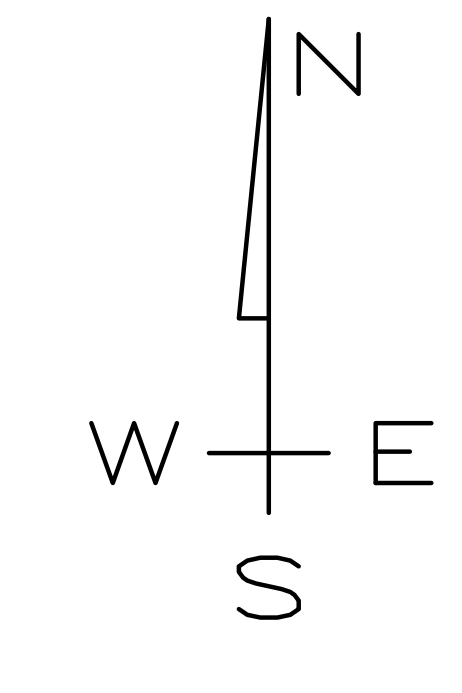
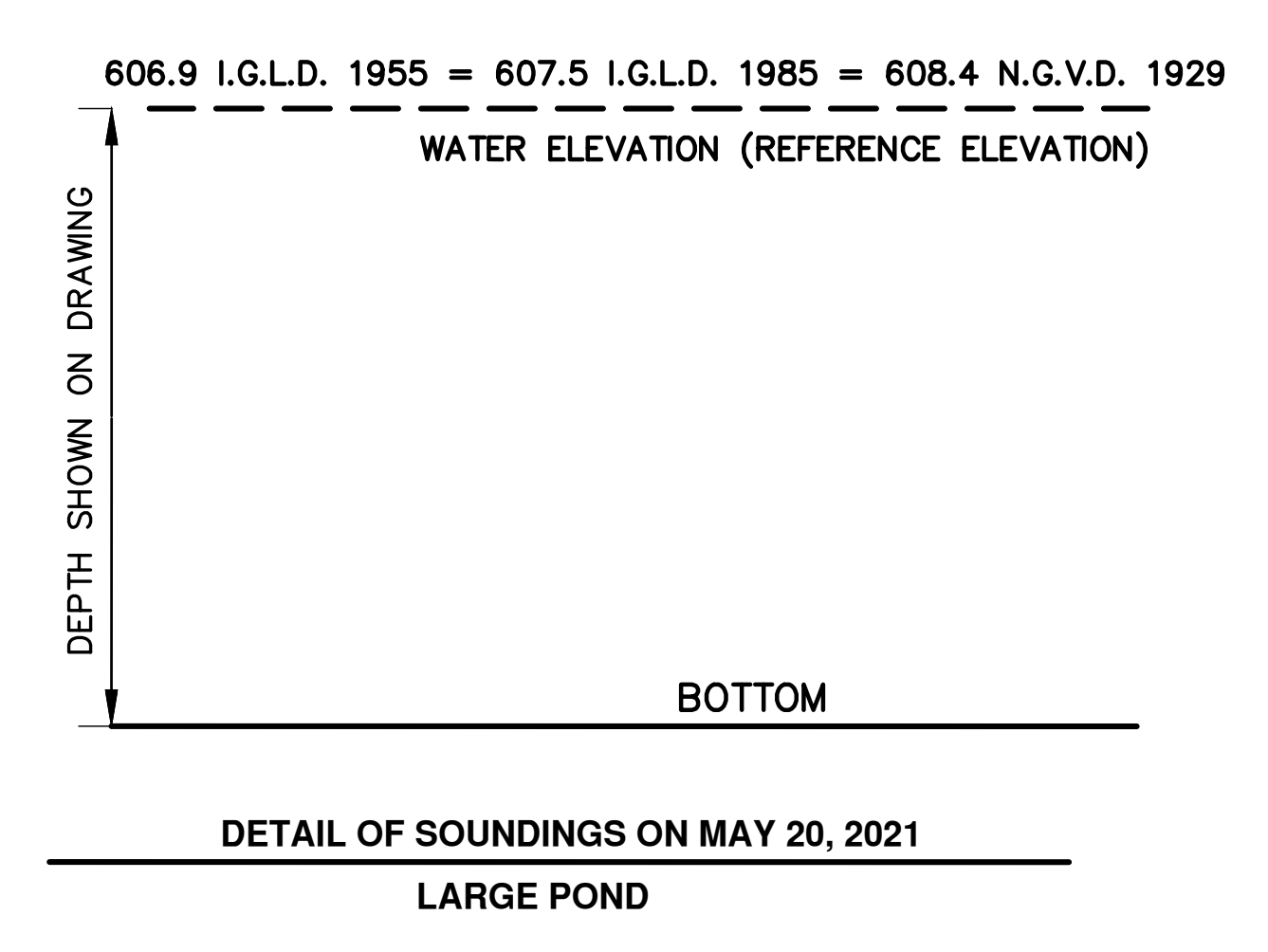
NO.	DATE	BY	DESCRIPTION
1			

NO.	DATE	BY	DESCRIPTION
1			

APPENDIX C

VARIOUS HISTORICAL DRAWINGS

8 | 7 | 6 | 5 | 4 | 3 | 2 | 1



NOTES:
 SM-4 -- INDICATES "SURFACE MONUMENT 4" NEW 2009 DESIGNATION.
 THE LINE INDICATED BETWEEN EACH MONITORING POINT APPROXIMATELY FOLLOWS THE CENTERLINE OF THE DIKE ROAD.

LARGE POND NOTES:
 WATER ELEVATION ON MAY 20, 2021 WAS 606.9 I.G.L.D. 1955, (607.5 I.G.L.D. 1985 or 608.4 N.G.V.D. 1929)
 DEPTHS SHOWN ARE BASED ON THE WATER ELEVATION. (606.9 I.G.L.D. 1955 DATUM = 607.5 I.G.L.D. 1985 DATUM = 608.4 N.G.V.D. 1929)
 PLANT DATUM = I.G.L.D. 1955 DATUM.
 THE CONTOURS INDICATED ARE AT 1 FOOT INTERVALS.

SMALL POND NOTES:
 WATER ELEVATION ON MAY 21, 2021 WAS 607.9 I.G.L.D. 1955, (608.5 I.G.L.D. 1985 or 609.4 N.G.V.D. 1929)
 DEPTHS SHOWN ARE BASED ON THE WATER ELEVATION. (607.9 I.G.L.D. 1955 DATUM = 608.5 I.G.L.D. 1985 DATUM = 609.4 N.G.V.D. 1929)
 PLANT DATUM = I.G.L.D. 1955 DATUM.
 THE CONTOURS INDICATED ARE AT 1 FOOT INTERVALS.

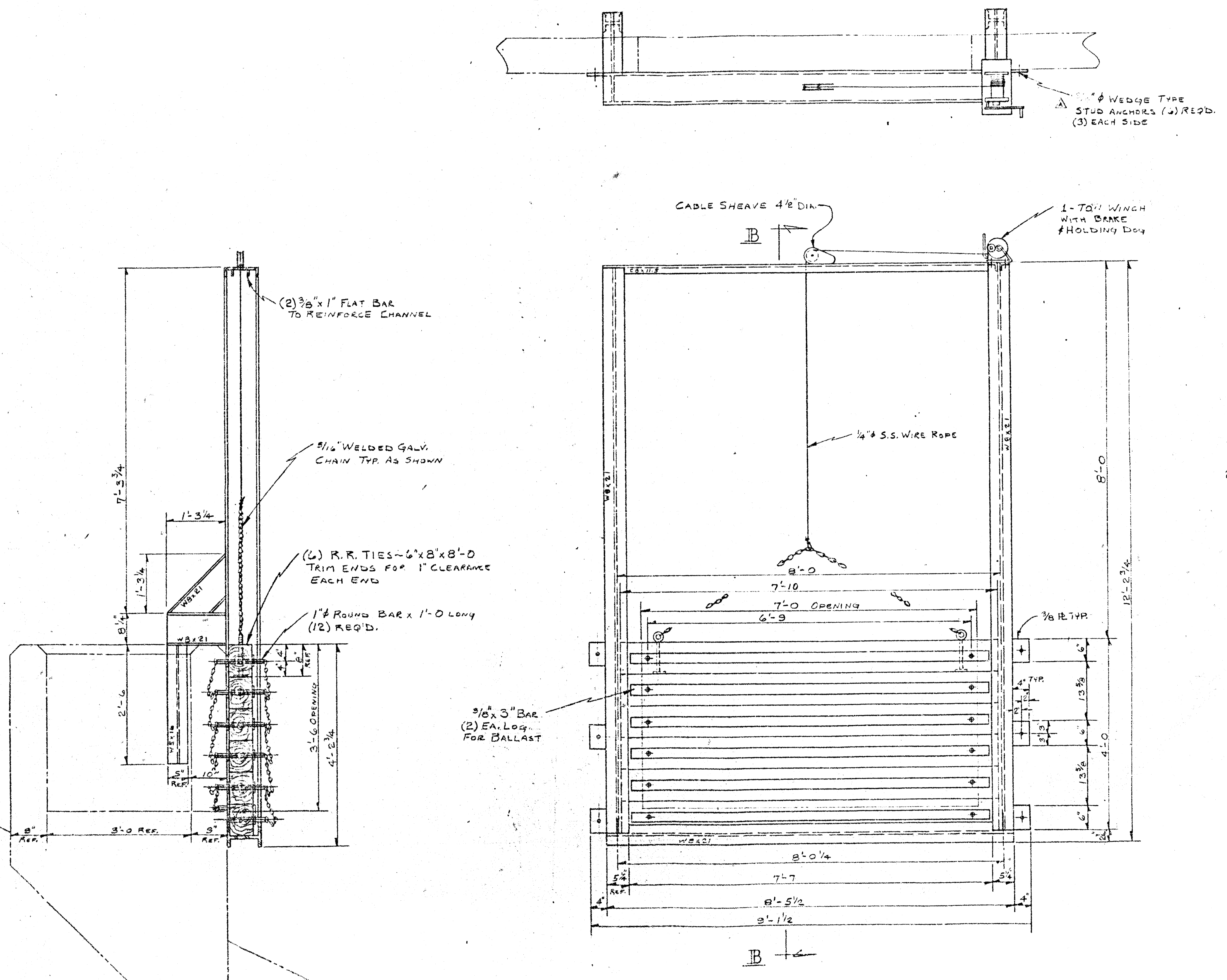


THIS DRAWING AND THE WORK PERFORMED TO OBTAIN THE DRAWING ARE A PRODUCT OF
DTE ENERGY'S SURVEYING SERVICES
 545 SERVICE BUILDING
 (313) 235-1461

DTE Energy - DTE Electric Company Central Design	
TITLE BATHYMETRIC SURVEY OF ON-SITE FLY ASH DISPOSAL CONTAINMENT LAKE	
SHEET 1 OF 1	
LOCATION NAME MONROE POWER PLANT	SCALE 1" = 200'
DRAWING NUMBER 6SE 0695-110	JOB NUMBER 202103071

PROJ. ENG.	PROJ. DIR.	PROJ. ENG.	PROJ. DIR.	PROJ. ENG.	PROJ. DIR.	OTHER APPROVALS	DATE	DIVISION	SUPERVISOR	DATE	PROPOSED BY	DATE
											C. ZBOCH	5/26/2021
											S. WLAZLIK, K. BALL	5/21/2021
											S. WLAZLIK	5/27/2021
											A. CASTILLO	5/27/2021
											M. FAIRLESS	

8 | 7 | 6 | 5 | 4 | 3 | 2 | 1



SHOP NOTES:
 1. STEEL BELOW WATER LEVEL IS TO HAVE (1) COAT OF BITUMASTIC PAINT.
 2. ALL OTHER STEEL IS TO HAVE (1) COAT OF PRIMER AND (1) COAT OF GRAY PAINT.

REVISIONS

1	PROVED	3	PROVED AS BUILT
2	PROVED - REVIEW NOT REQUIRED	4	REVISED & REBUILT

For a Detailed Description of the Contract, See Attached Letter of Transmittal Dated 3-20-70 by G. M. [Signature]

Location: Monroe Rd. Ash Basin File No. 22-198
 No. 087312 Date 3-13-80

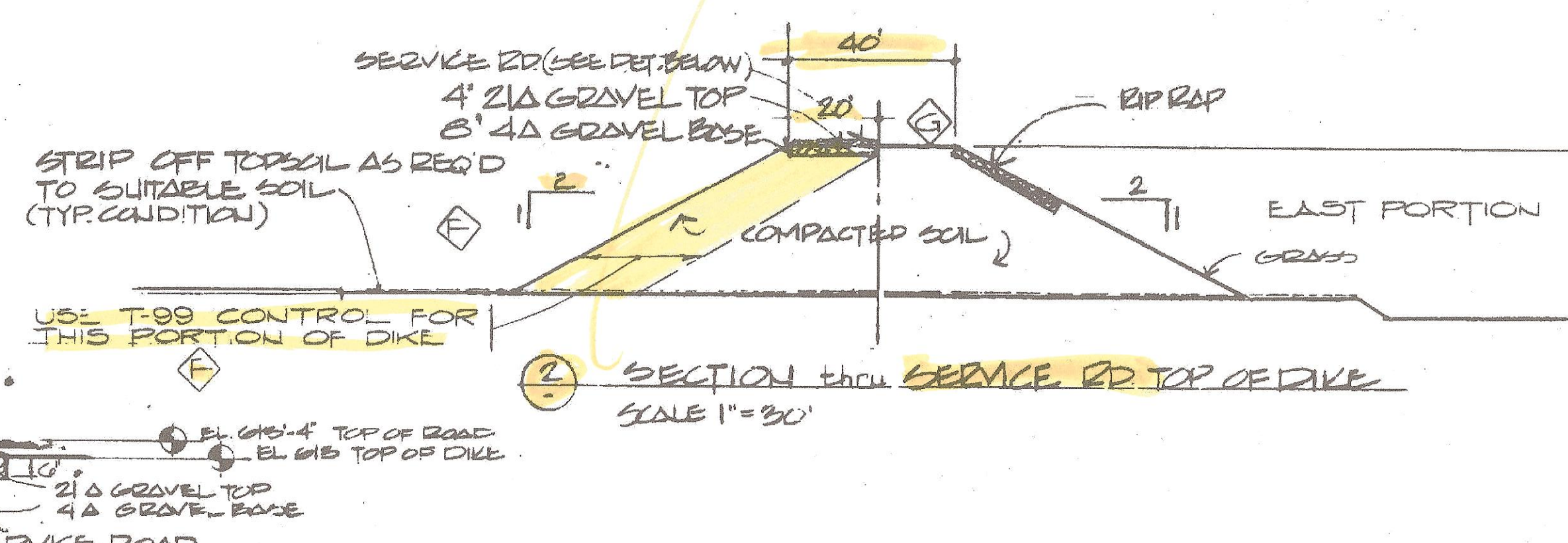
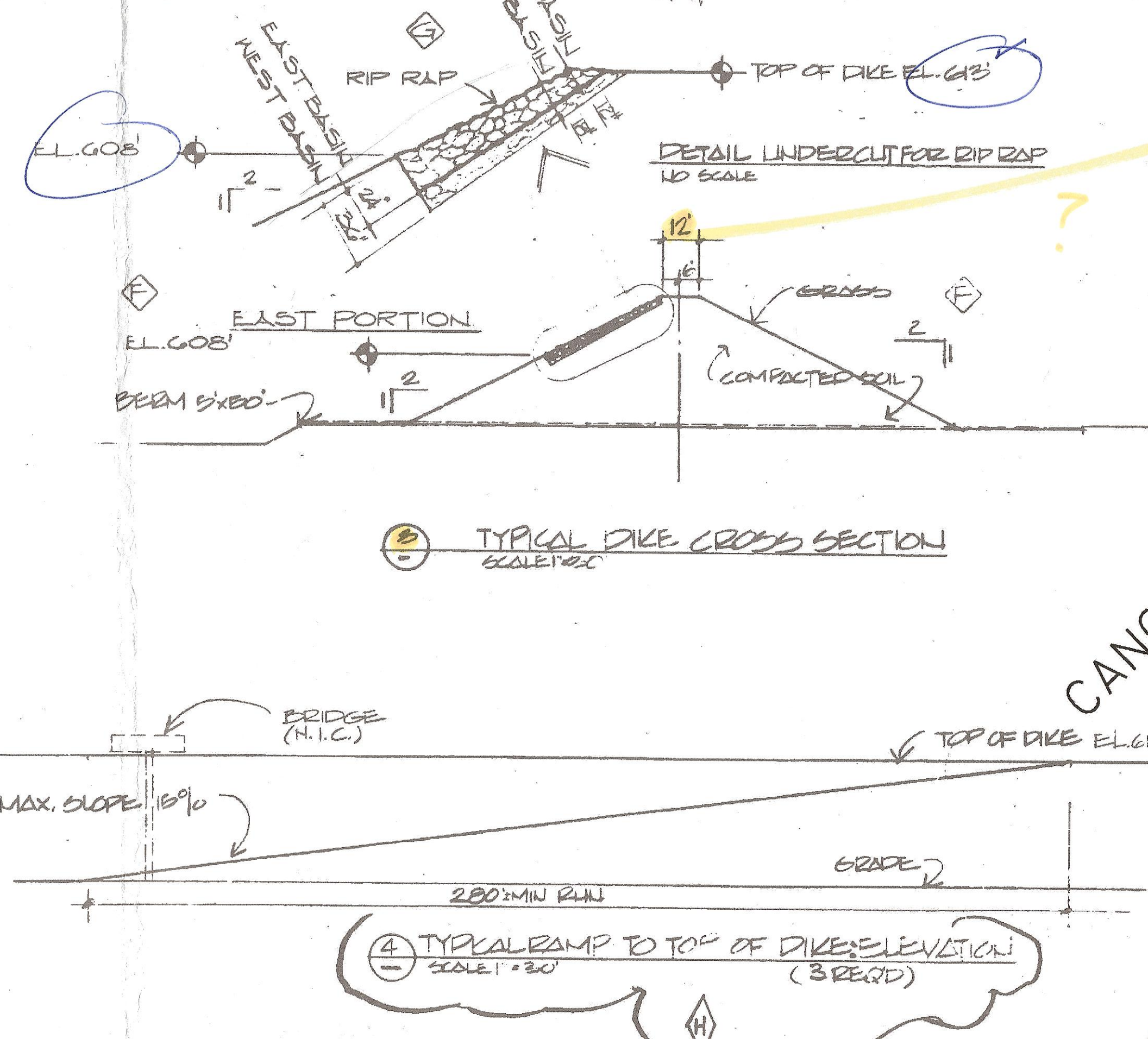
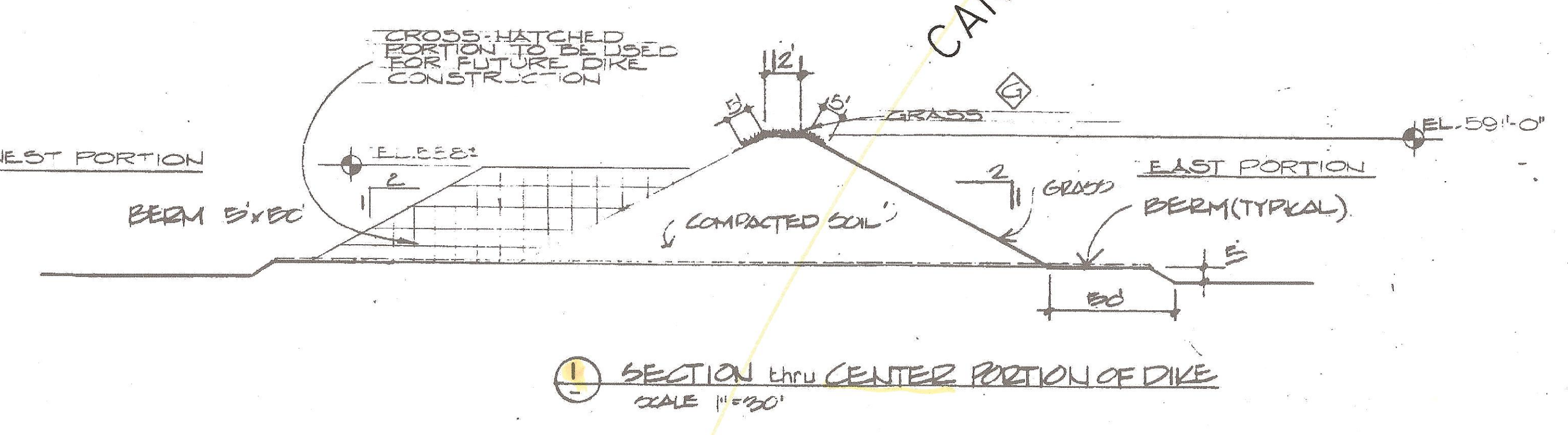
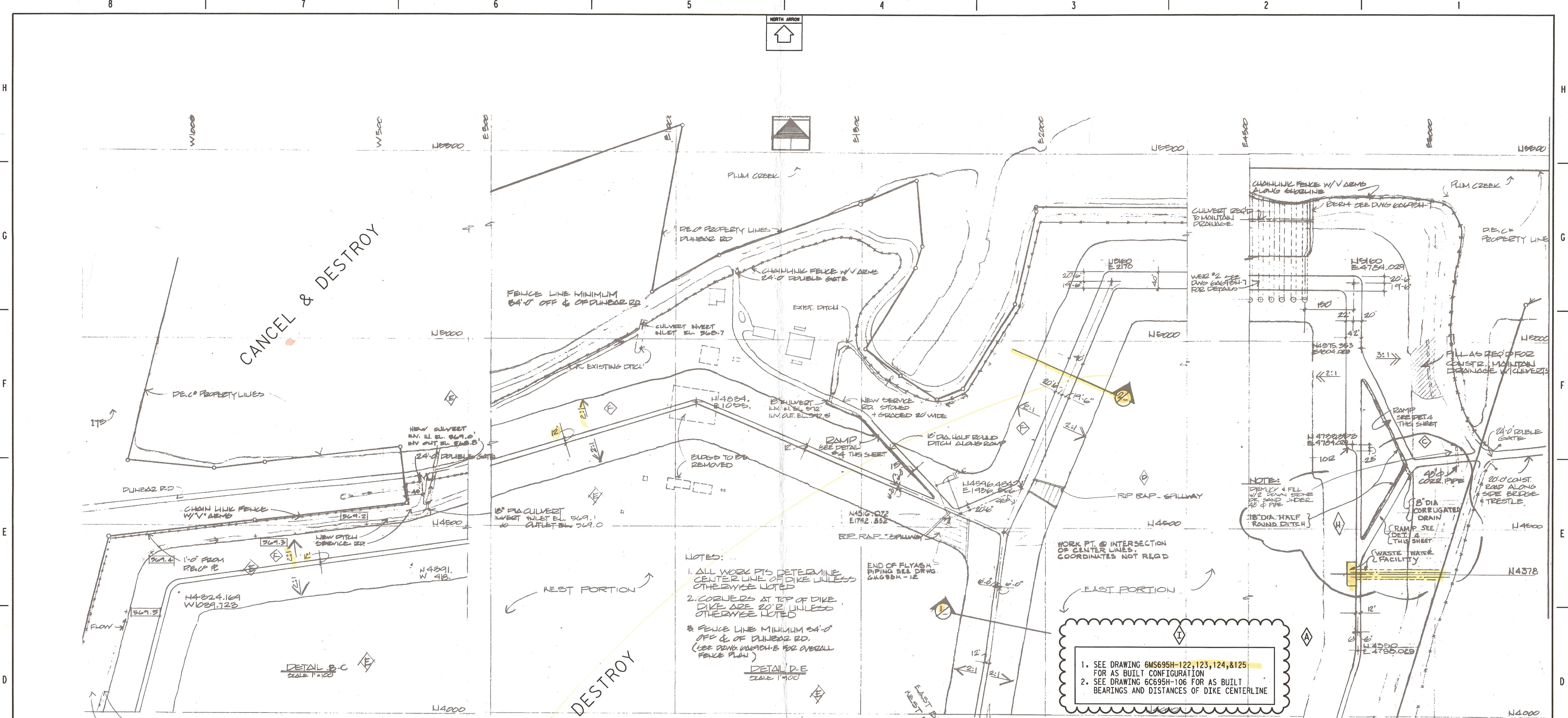
REV.	DESCRIPTION	DATE

312A297

B	REDRAWN AS BUILT	D.L. 2/4/80
A	ADDED ANCHOR SIZE	D.L. 2/24/80
REV.	CHANGE	BY DATE

William F. Foy, Inc.
 MECHANICAL CONTRACTOR
 TOLEDO, OHIO

DATE: MAR. 6, 1980 DRAWN BY: Doy
 SCALE: 1" = 1'-0" CHK. BY:
 LEVEL CONTROL GATES-ASH BASIN
 DUNBAR ROAD ASH POND
 DETROIT EDISON MONROE MICHIGAN
 DWG. NO. 80-104-0215



NO.	DATE	BY	CHECKED	DESCRIPTION
1	7-7-71	REZAI	REZAI	ISSUED FOR PERMITS
2	8-7-71	REZAI	REZAI	REVISED FOR CHANGES
3	8-27-71	REZAI	REZAI	REVISED FOR CHANGES
4	10-27-71	REZAI	REZAI	REVISED FOR CHANGES
5	11-16-71	REZAI	REZAI	REVISED FOR CHANGES
6	12-2-71	REZAI	REZAI	REVISED FOR CHANGES
7	1-14-72	REZAI	REZAI	REVISED FOR CHANGES
8	1-29-72	REZAI	REZAI	REVISED FOR CHANGES
9	1-30-72	REZAI	REZAI	REVISED FOR CHANGES
10	1-30-72	REZAI	REZAI	REVISED FOR CHANGES
11	1-30-72	REZAI	REZAI	REVISED FOR CHANGES
12	1-30-72	REZAI	REZAI	REVISED FOR CHANGES
13	1-30-72	REZAI	REZAI	REVISED FOR CHANGES
14	1-30-72	REZAI	REZAI	REVISED FOR CHANGES
15	1-30-72	REZAI	REZAI	REVISED FOR CHANGES
16	1-30-72	REZAI	REZAI	REVISED FOR CHANGES
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18	1-30-72	REZAI	REZAI	REVISED FOR CHANGES
19	1-30-72	REZAI	REZAI	REVISED FOR CHANGES
20	1-30-72	REZAI	REZAI	REVISED FOR CHANGES

6A695H-5
LATEST REVISION "I"

DOCUMENT CONTROL NO. 116200

THE DETROIT EDISON CO. ENGINEERING DEPARTMENTS

TITLE: SETTLING BASINS
DETAILS & SECTIONS: EAST
WEST PORTIONS
LOCATION: MOLDOE POWER PLANT

DATE: 7-7-71
DRAWN BY: REZAI
CHECKED BY: REZAI
PROJECT ENGINEER: REZAI
PROJECT DIRECTOR: REZAI

DATE: 8-7-71
DATE: 8-27-71
DATE: 10-27-71
DATE: 11-16-71
DATE: 12-2-71
DATE: 1-14-72
DATE: 1-29-72
DATE: 1-30-72
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DATE: 1-30-72
DATE: 1-30-72

CANCEL & DESTROY

PLAN SOUTHERN SEGMENT OF BASIN
SCALE 1"=200' (PORTALS NOT SHOWN)

EXIST. TRANSMISSION LINE TOWER

PORTAL 2

1000' 0"

LINKS 8278

N 1000

N 1500

N 2000

N 2500

N 1000

N 1500

N 2000

N 1000

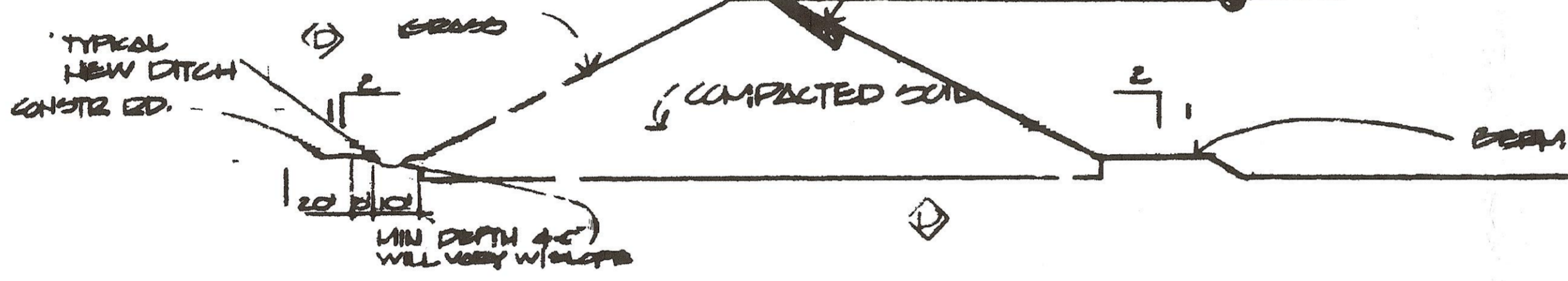
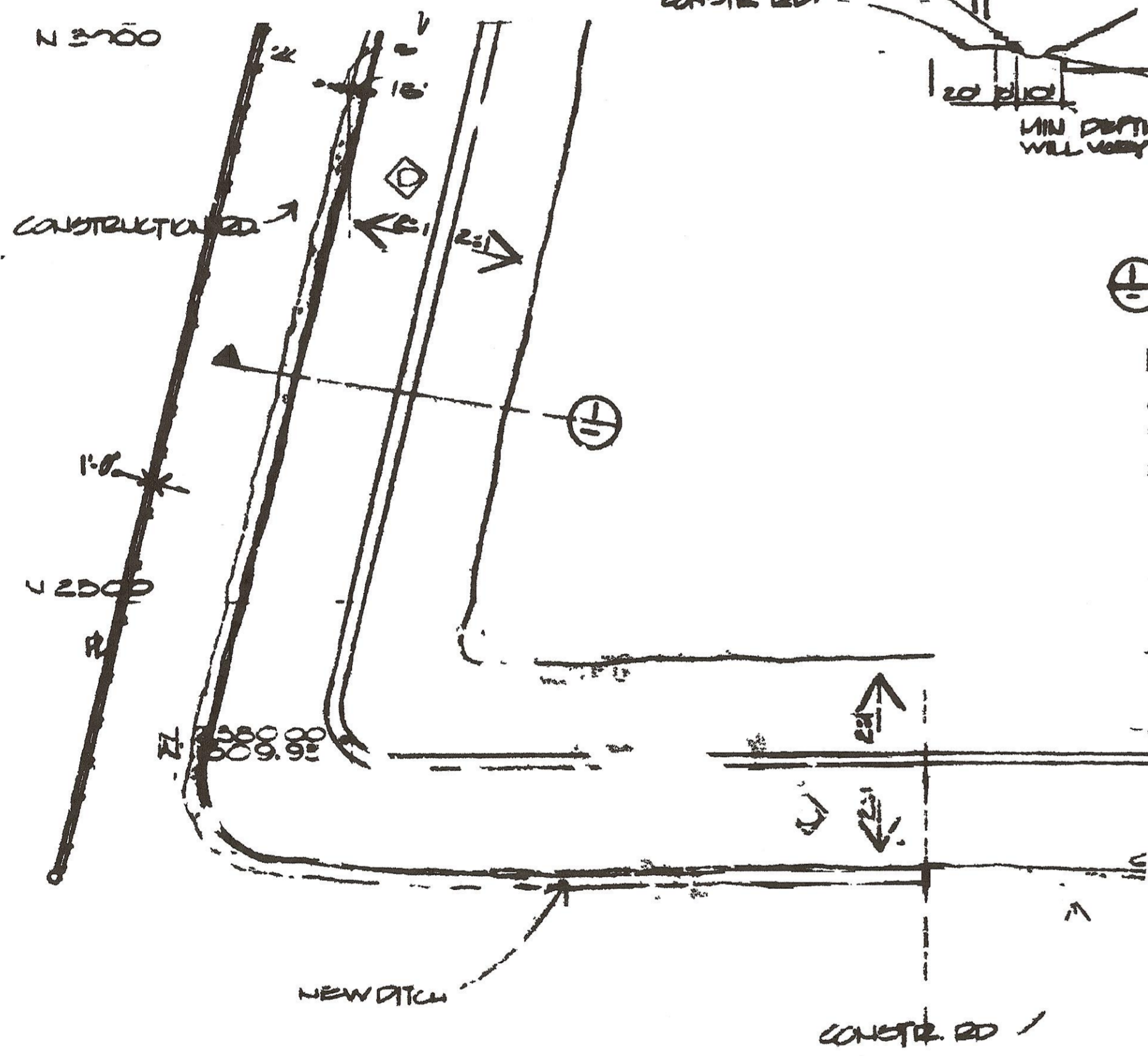
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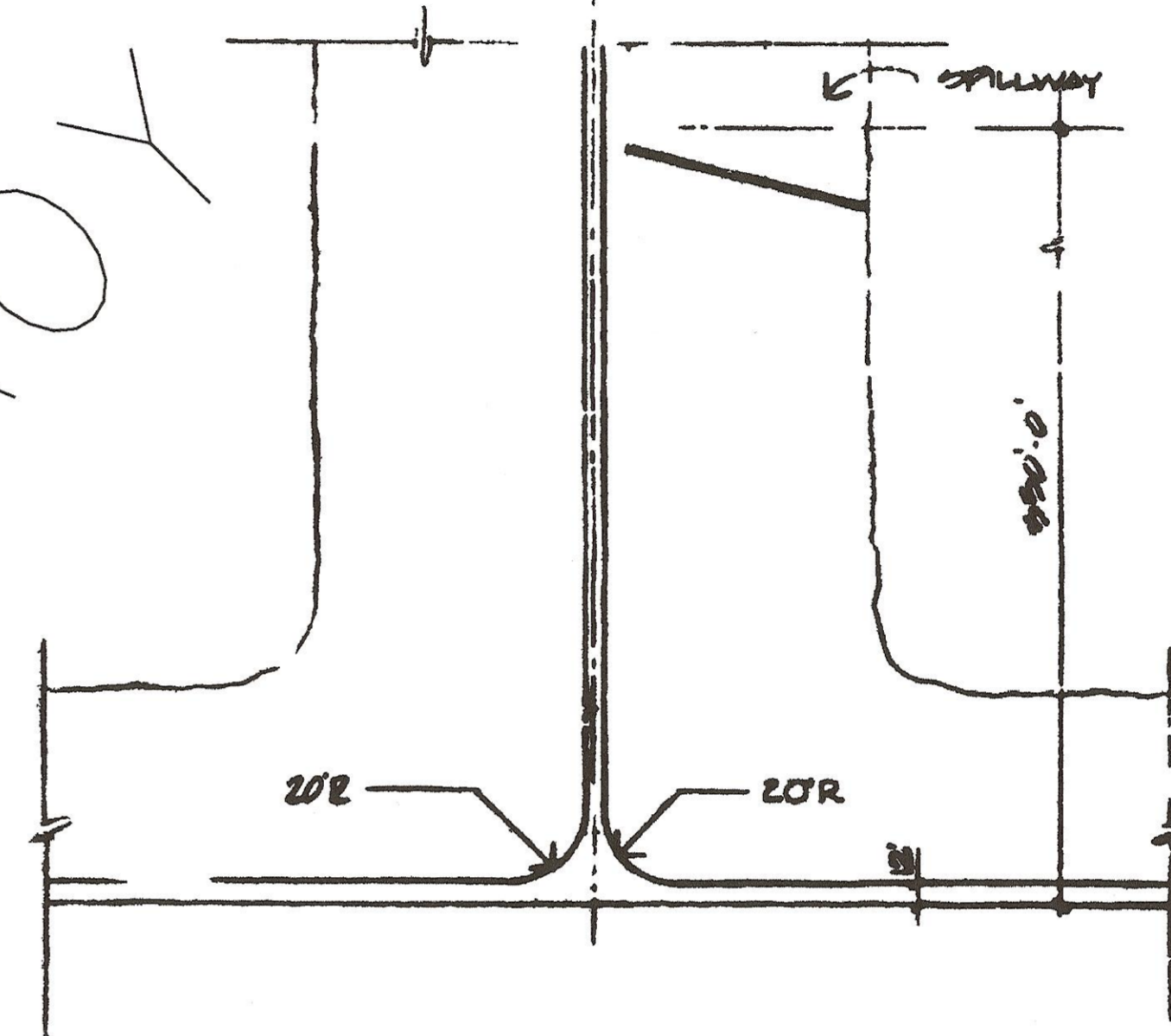
N 1000

N 1500

N 2000



SECTION 1-1
SCALE 1"=50'



DETAIL OF DIKE INTERSECTION
SCALE 1"=50'

NOTES

1. ALL WORK FOR DETERMINE CENTER LINE OF DIKE UNLESS OTHERWISE NOTED
2. CORNER ROUNDS AT TOP OF DIKE ARE 30' R MIN UNLESS OTHERWISE NOTED

1. SEE DRAWING 6M695H-122,123,124,&125 FOR AS BUILT CONFIGURATION
2. SEE DRAWING 6C695H-106 FOR AS BUILT BEARINGS AND DISTANCES OF DIKE CENTERLINE

DETAIL 1-1
SCALE 1"=50'

1. NOTE: FENCE SHALL BE 150' LONGER THAN 12
2. FOR OVERALL FENCING PLAN SEE DRAWING 6A695H-3

DETAIL 1-1
SCALE 1"=50'

6A695H-6
LATEST REVISION "E"

NO.	DATE	BY	CHKD BY	APP'D BY	DESCRIPTION
1	7-24	MTB	MTB	MTB	CHANGE SLOPE 2:1
2	11-72	MTB	MTB	MTB	REVISED FENCING LAYOUT & ADDED GATE NEAR 11000
3	11-72	MTB	MTB	MTB	REVISED TRANSMISSION TOWER PADS FROM S. SEGMENT OF ASH BASIN'S ADDED FENCE TO DETAIL 'D' & 'E'

THE DETROIT EDISON CO. ENGINEERING DEPARTMENT

TITLE: **DIKE SETTLING BASIN**

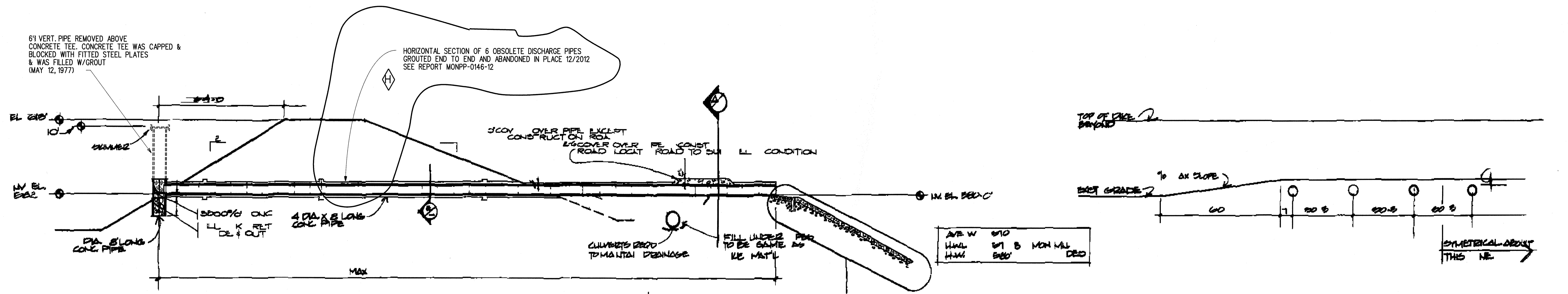
DETAIL: **1-1**

LOCATION: **MONROE POWER PLANT**

PROJECT NO.: **6A695H-6**

DATE: 7-24

OPERATOR: MTB

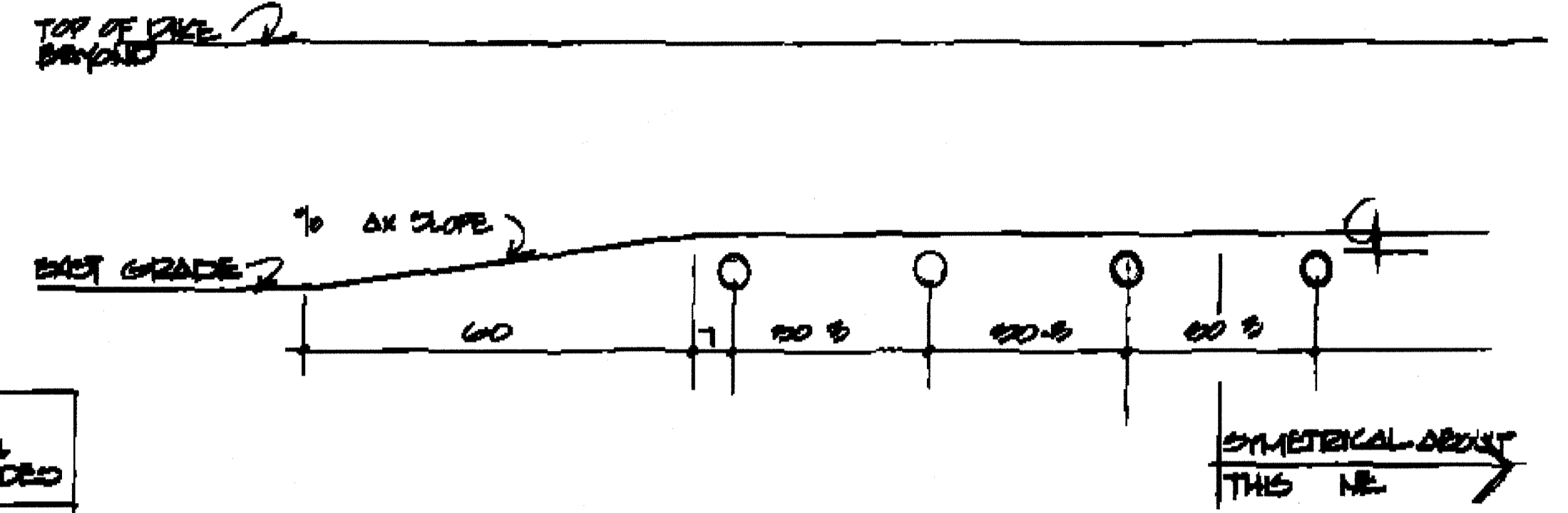
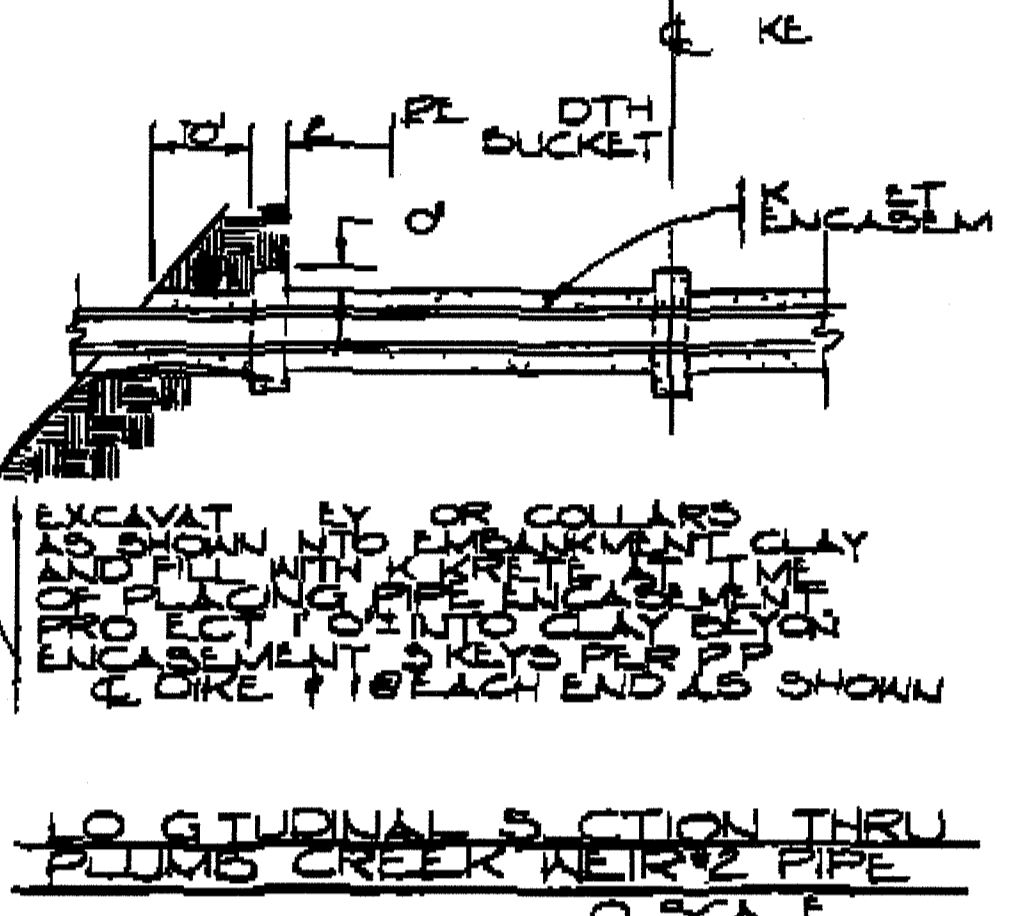
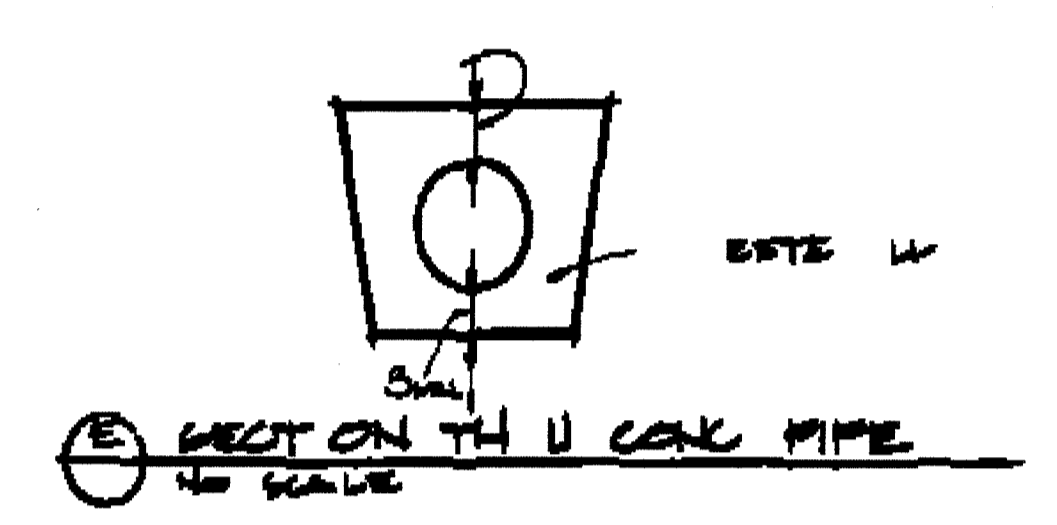


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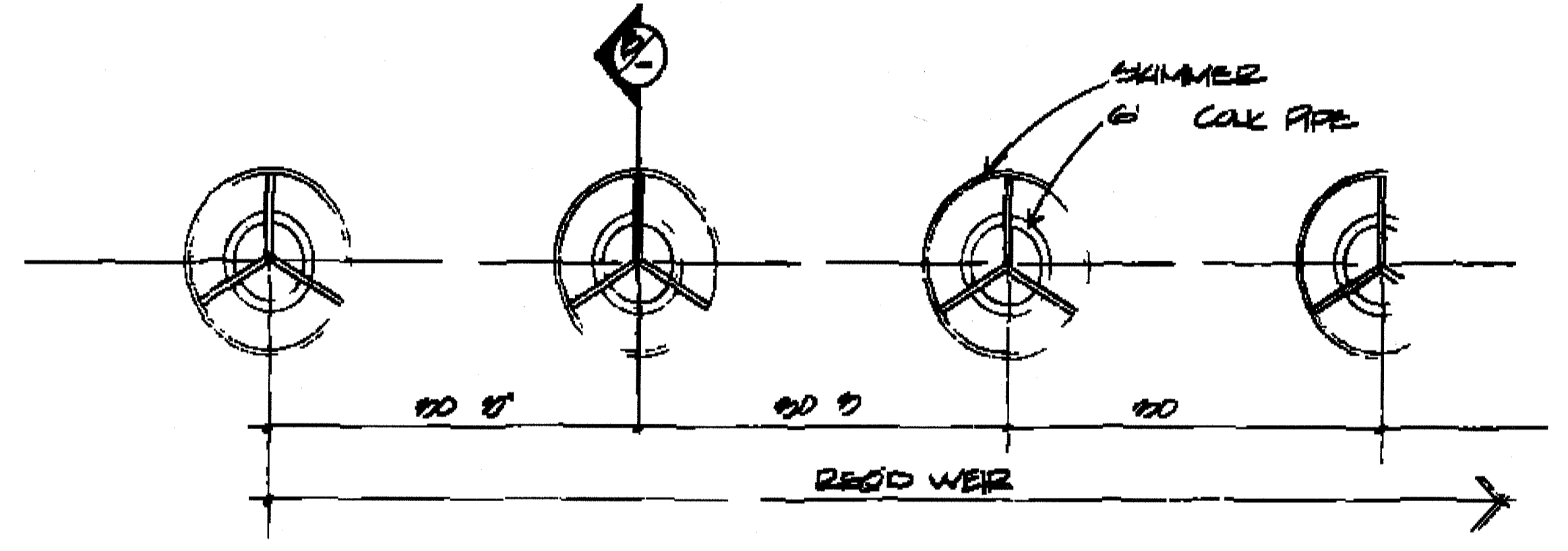
HORIZONTAL SECTION OF 6 OBSOLETE DISCHARGE PIPES
GROUTED END TO END AND ABANDONED IN PLACE 12/2012
SEE REPORT MONPP-0146-12

NOTES
CONCRETE SHALL BE TO
MINIMUM ABOVE TO OF PIPE
EXCAVATE FOR PER
5\"/>

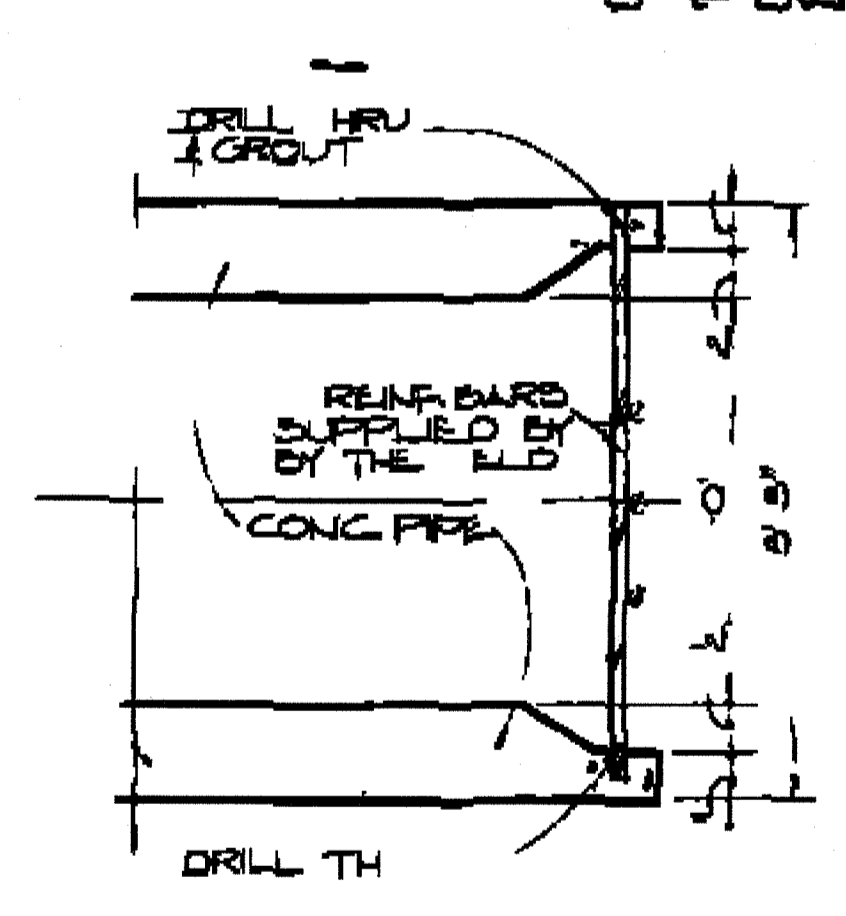
SECTION WEIR #2 TO PLUM CREEK
SCALE 2\"/>



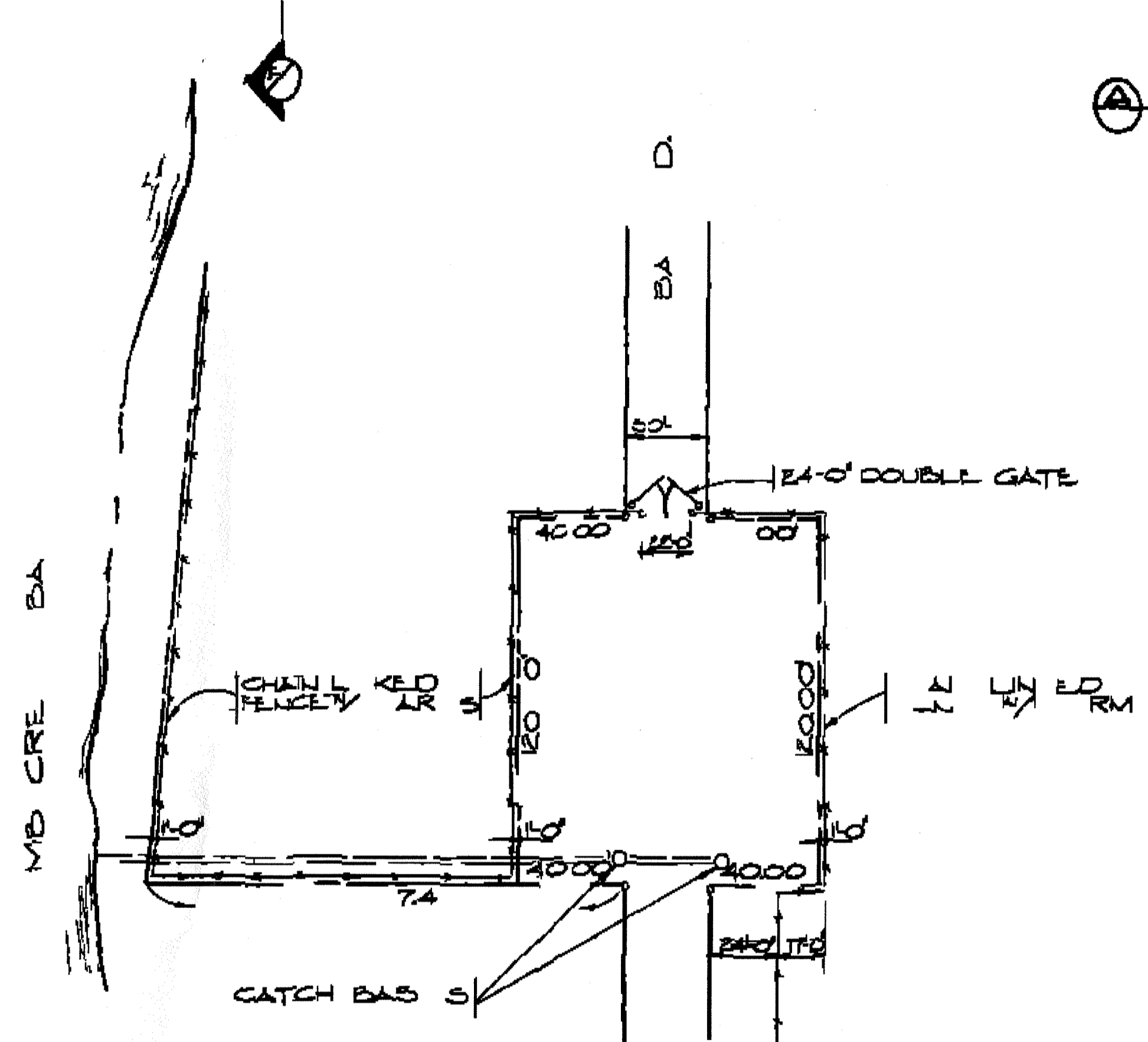
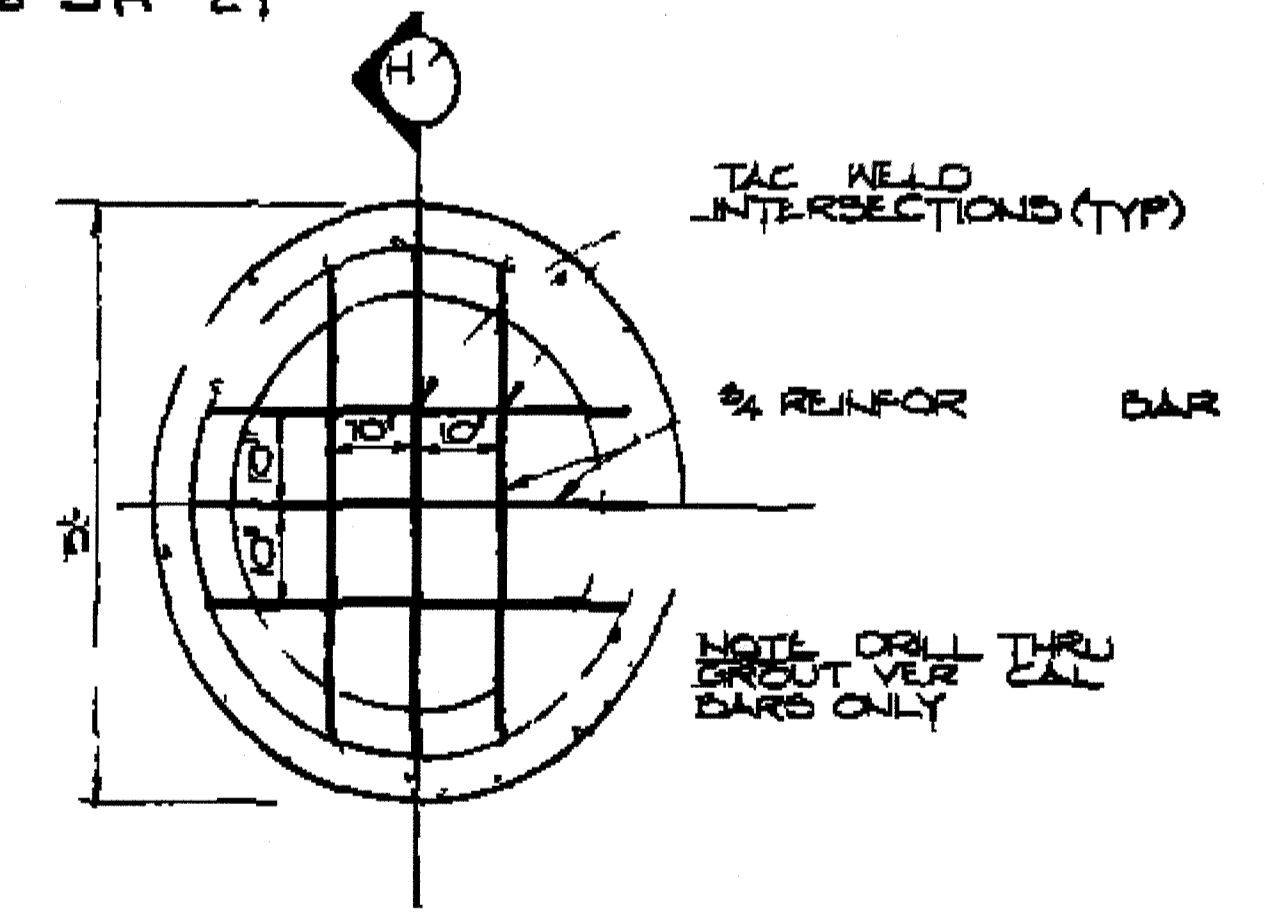
PARTIAL SECTION OF OVERFLOW
SCALE 2\"/>



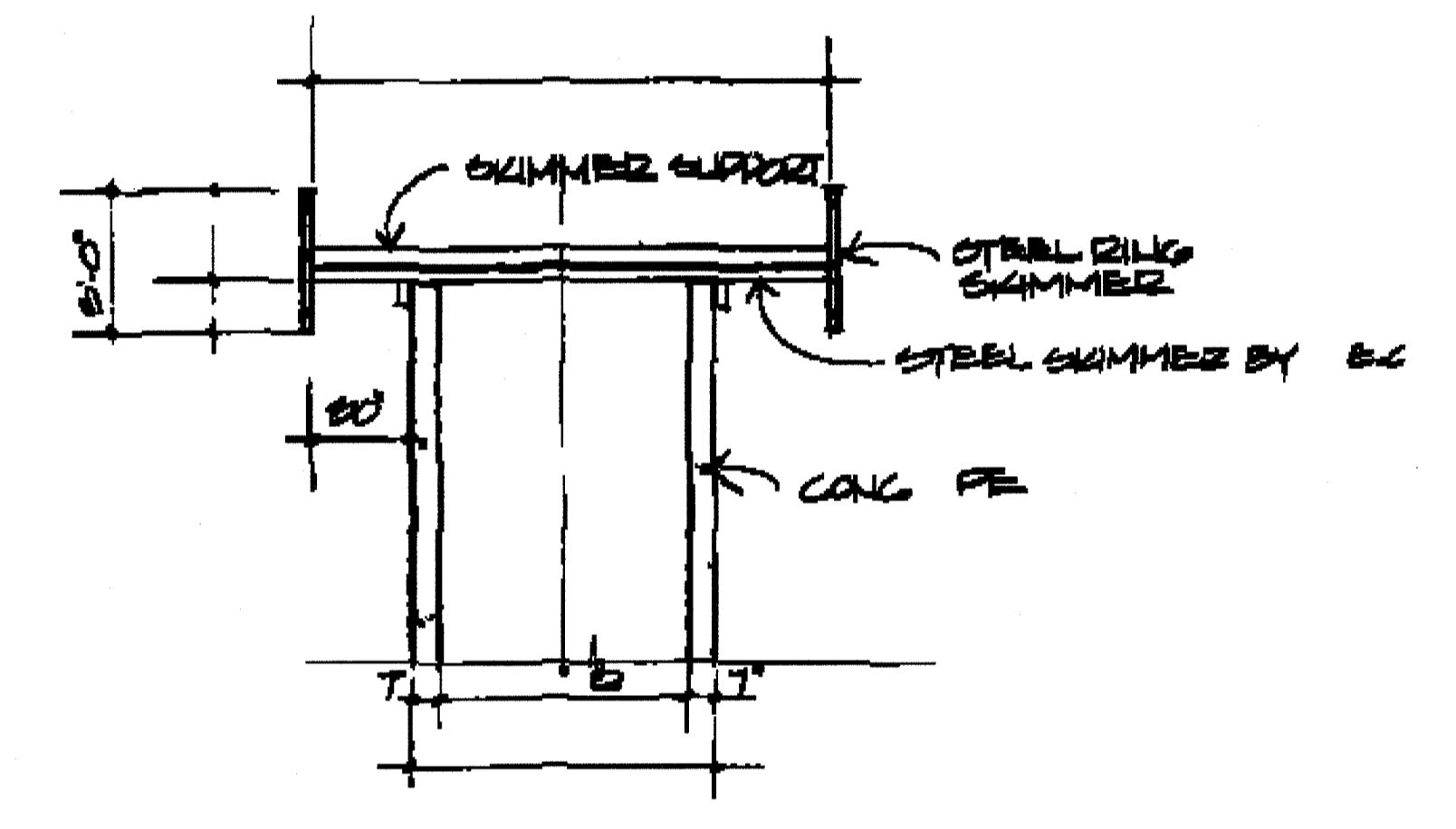
PARTIAL PLAN OF WEIRS (TYP)
SCALE 1\"/>



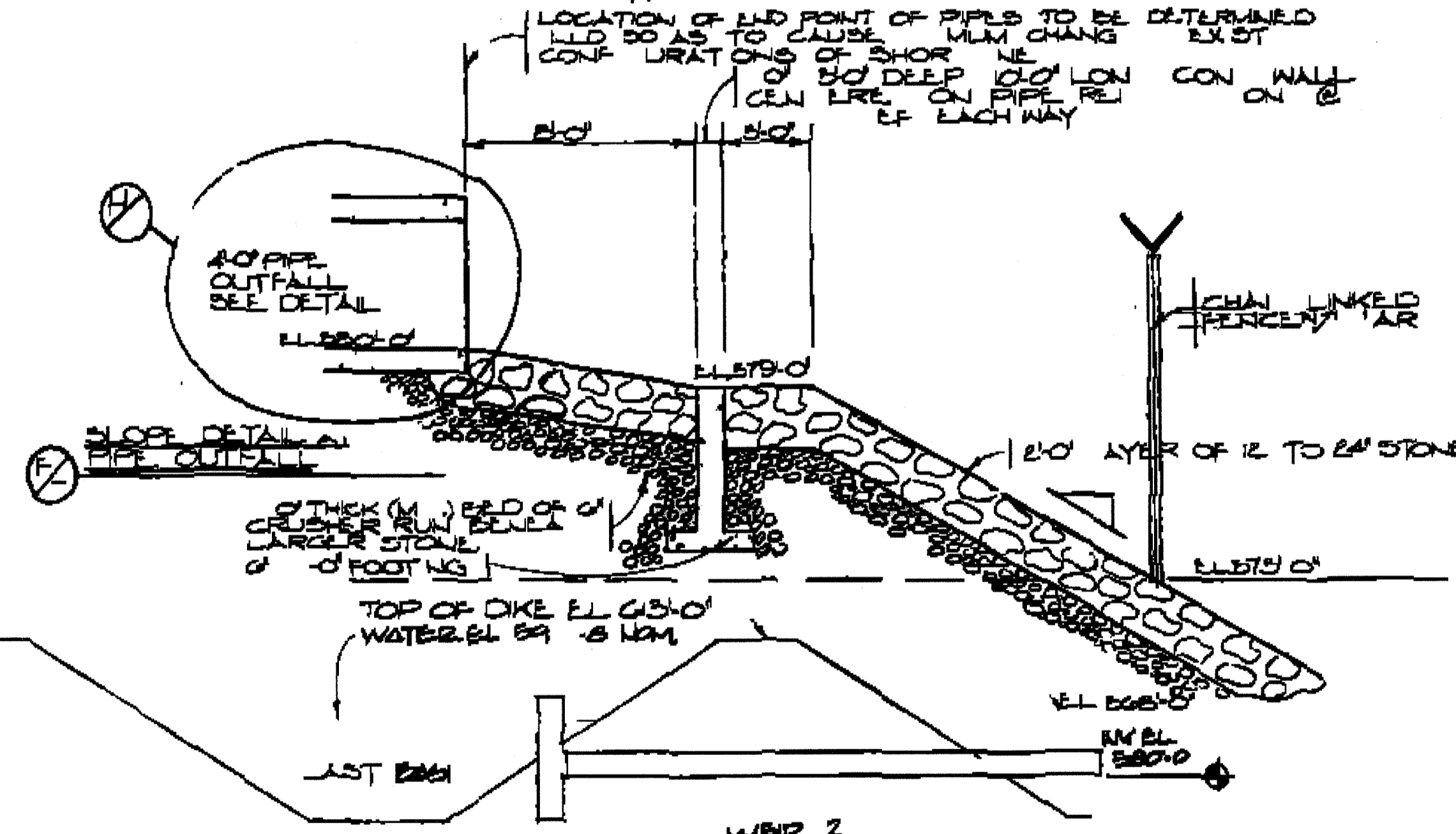
SECTION THRU CONC PIPE AT OUTFALL



DETAIL G
SCALE 1\"/>



WEIR SKIMMER SECTION
SCALE 1\"/>



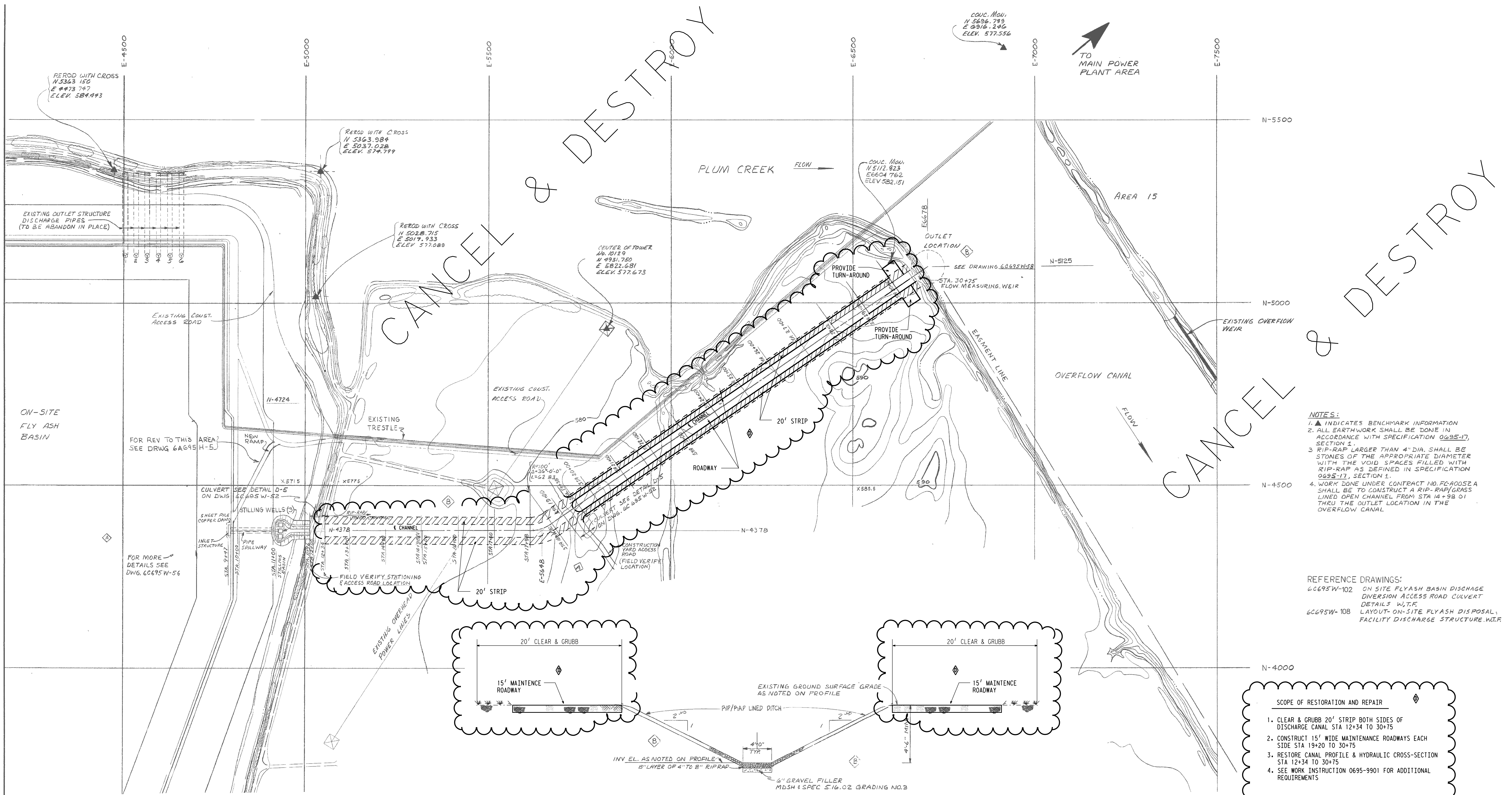
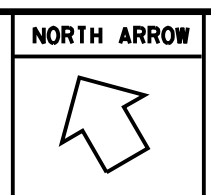
- SEE DRAWING 6A695H-122, 123, 124, & 125 FOR AS BUILT CONFIGURATION.
- SEE DRAWING 6A695H-106 FOR AS BUILT BEARINGS AND DISTANCES OF DIKE CENTERLINE.

6A695H-7
LATEST REVISION H

NO.	DATE	BY	CHKD.	APP.	DESCRIPTION
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2	05/12/12	JRD	WMS		AS BUILT
3	05/12/12	JRD	WMS		AS BUILT
4	05/12/12	JRD	WMS		AS BUILT
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6	05/12/12	JRD	WMS		AS BUILT
7	05/12/12	JRD	WMS		AS BUILT
8	05/12/12	JRD	WMS		AS BUILT
9	05/12/12	JRD	WMS		AS BUILT
10	05/12/12	JRD	WMS		AS BUILT
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66	05/12/12	JRD	WMS		AS BUILT
67	05/12/12	JRD	WMS		AS BUILT
68	05/12/12	JRD	WMS		AS BUILT
69	05/12/12	JRD	WMS		AS BUILT
70	05/12/12	JRD	WMS		AS BUILT
71	05/12/12	JRD	WMS		AS BUILT
72	05/12/12	JRD	WMS		AS BUILT
73	05/12/12	JRD	WMS		AS BUILT
74	05/12/12	JRD	WMS		AS BUILT
75	05/12/12	JRD	WMS		AS BUILT
76	05/12/12	JRD	WMS		AS BUILT
77	05/12/12	JRD	WMS		AS BUILT
78	05/12/12	JRD	WMS		AS BUILT
79	05/12/12	JRD	WMS		AS BUILT
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95	05/12/12	JRD	WMS		AS BUILT
96	05/12/12	JRD	WMS		AS BUILT
97	05/12/12	JRD	WMS		AS BUILT
98	05/12/12	JRD	WMS		AS BUILT
99	05/12/12	JRD	WMS		AS BUILT
100	05/12/12	JRD	WMS		AS BUILT

DESIGN CONTROL

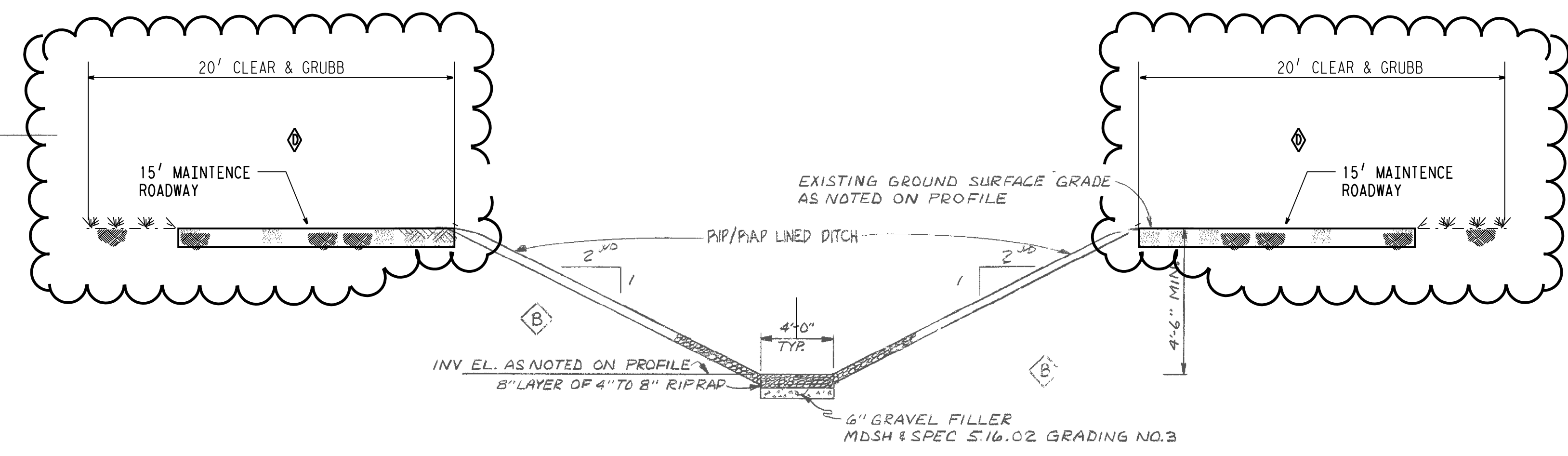
6A695H-7
LATEST REVISION H
DESIGN FILE NAME: 0695-A-H-007.DGN
DATE: 05JUN13 OPERATOR: SP



- NOTES:**
- ▲ INDICATES BENCHMARK INFORMATION
 - ALL EARTHWORK SHALL BE DONE IN ACCORDANCE WITH SPECIFICATION 0695-17, SECTION 1.
 - RIP-RAP LARGER THAN 4" DIA. SHALL BE STONES OF THE APPROPRIATE DIAMETER WITH THE VOID SPACES FILLED WITH RIP-RAP AS DEFINED IN SPECIFICATION 0695-17, SECTION 1.
 - WORK DONE UNDER CONTRACT NO. FC-AD052A SHALL BE TO CONSTRUCT A RIP-RAP/GRASS LINED OPEN CHANNEL FROM STA 14+98.01 THRU THE OUTLET LOCATION IN THE OVERFLOW CANAL.

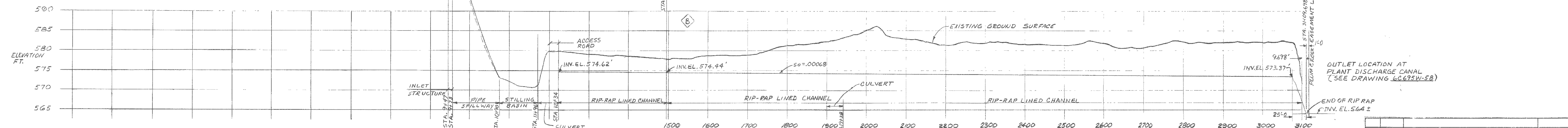
- REFERENCE DRAWINGS:**
- 6C695W-102 ON-SITE FLY ASH BASIN DISCHARGE DIVERSION ACCESS ROAD CULVERT DETAILS W.T.F.
 - 6C695W-108 LAYOUT-ON-SITE FLY ASH DISPOSAL FACILITY DISCHARGE STRUCTURE W.T.F.

- SCOPE OF RESTORATION AND REPAIR**
- CLEAR & GRUBB 20' STRIP BOTH SIDES OF DISCHARGE CANAL STA 12+34 TO 30+75
 - CONSTRUCT 15' WIDE MAINTENANCE ROADWAYS EACH SIDE STA 19+20 TO 30+75
 - RESTORE CANAL PROFILE & HYDRAULIC CROSS-SECTION STA 12+34 TO 30+75
 - SEE WORK INSTRUCTION 0695-9901 FOR ADDITIONAL REQUIREMENTS



CANCEL & DESTROY

6C695W-50
LATEST REVISION "D"

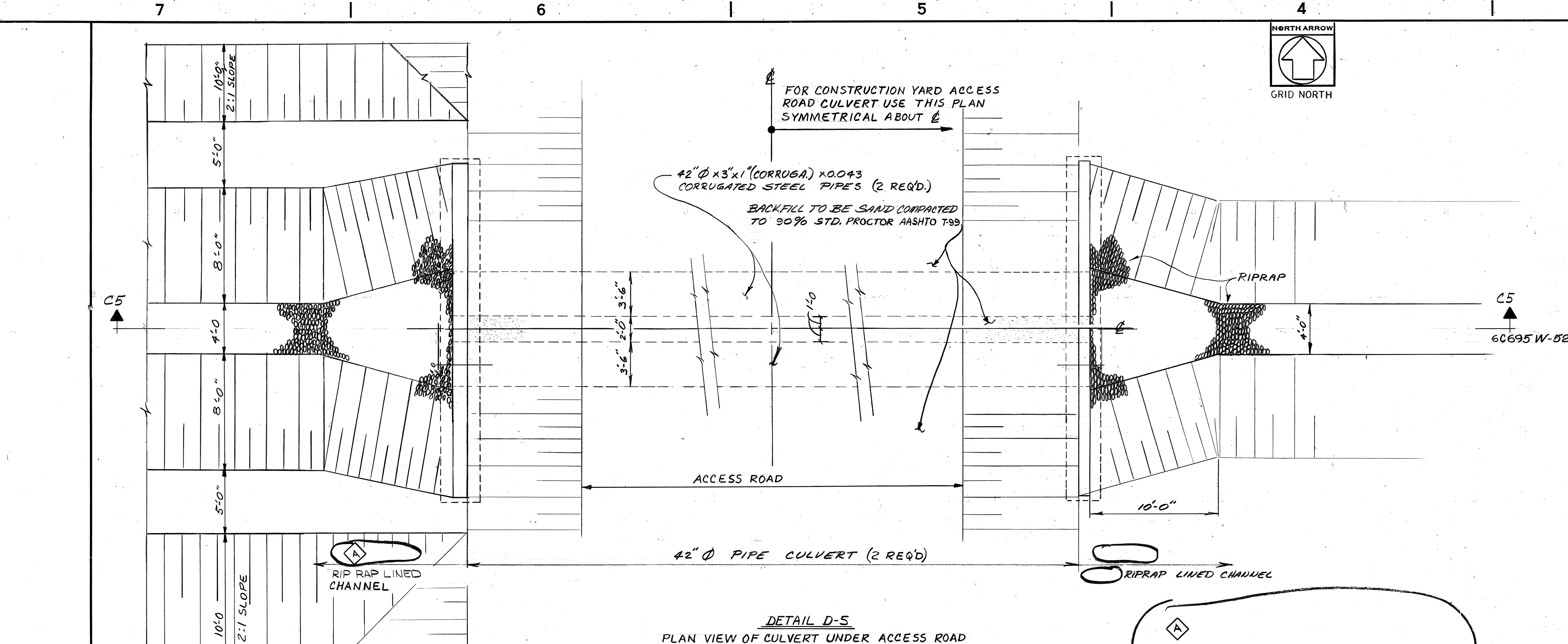


PROFILE AT CENTERLINE OF ON-SITE FLY ASH BASIN DISCHARGE CHANNEL
HORIZ. SCALE 1"=100'
VERT. SCALE 1"=10'

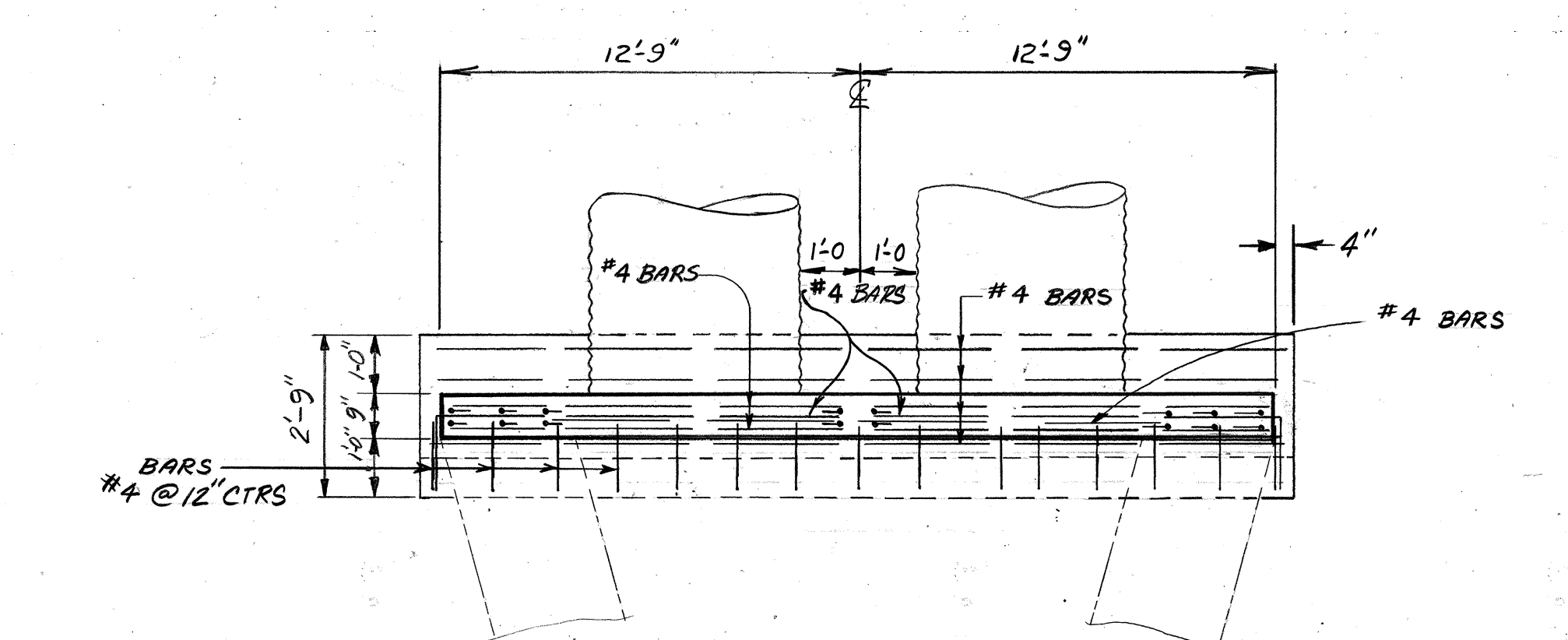
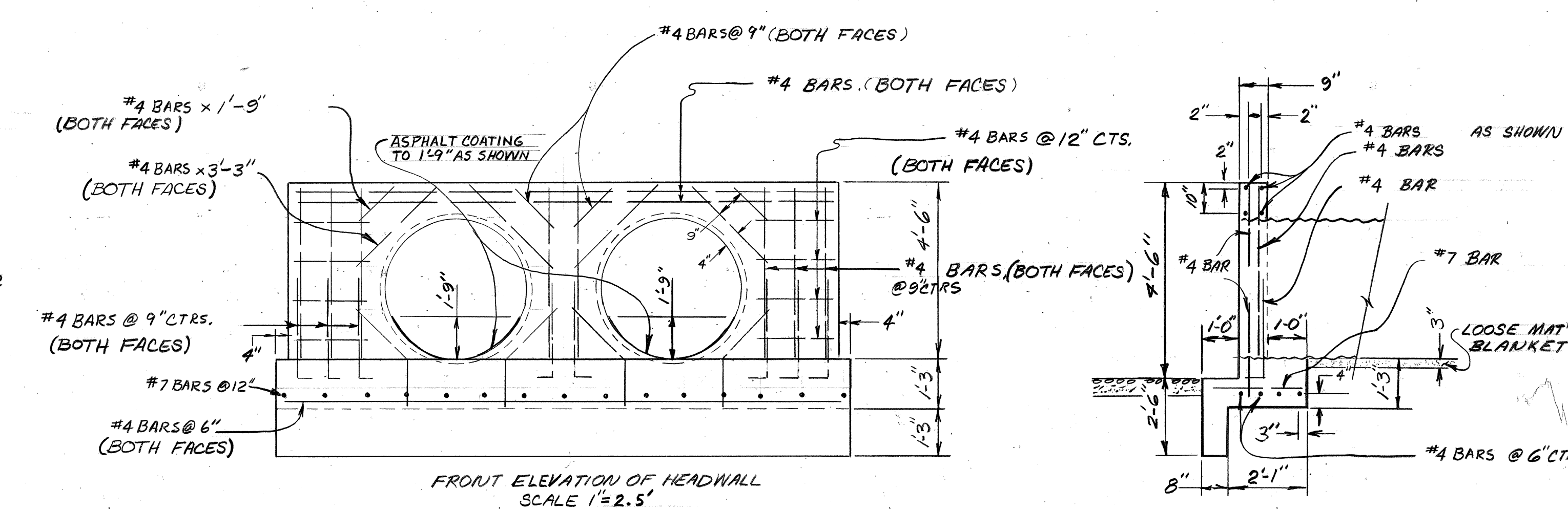
CUNNINGHAM ENGINEERS, INC.
1212 WASHINGTON AVE JACKSON, MICHIGAN 48601
MON 93003

3	12AUG99	FOR REVIEW	
2	16-15-98	Revised Construction Rev. C	
1	5/25/97	CONTRACT NO. FC-AD052A	

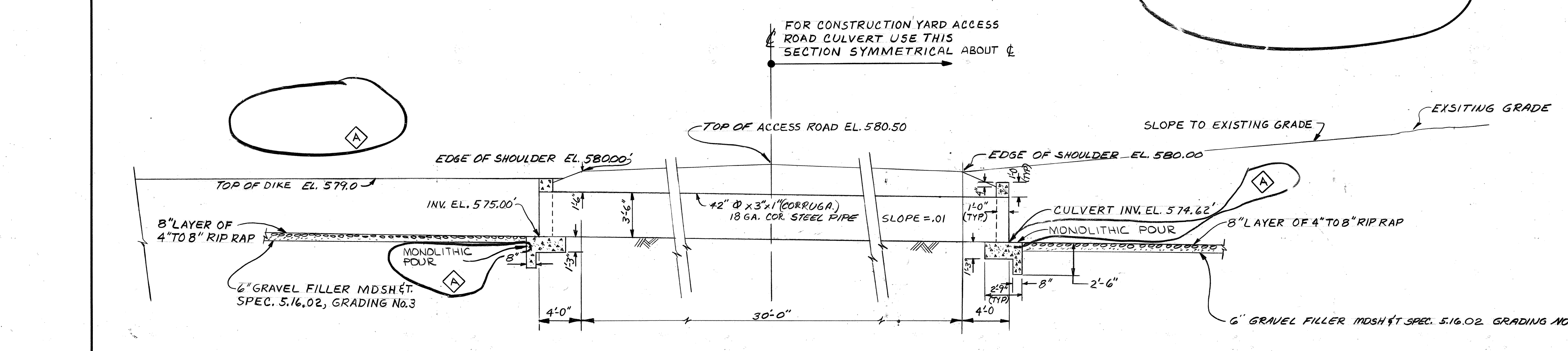
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DETAIL D-5
PLAN VIEW OF CULVERT UNDER ACCESS ROAD
SCALE 1"=5'-0"



PLAN VIEW OF HEADWALL
SCALE 1"=2'-5"



SECTION C5-C5
SCALE 1"=5'-0"

REFERENCE DRAWINGS:
6C695W-50 ON-SITE FLY ASH BASIN DISCHARGE DIVERSION SITE PLAN W.T.F.

- GENERAL NOTES:
- All concrete work and reinforcement steel placement shall be in accordance with Specification No. 6695-17.
 - All concrete shall be air entrained developing a compressive strength of **3750** PSI at 28 days, unless otherwise noted.
 - Reinforcing steel shall be deformed bars in accordance with Specification A-615 Grade 60, and shall have a minimum of 2" of concrete cover from a formed corner.
 - Formwork shall be true and straight unless otherwise noted.
 - Welded connections shall be in accordance with ASTM Specification A-153.
 - Unless otherwise noted, finish shall be horizontal concrete surfaces shall be **BROOM** ON CULVERT STRUCTURES.
 - P.V.C. waterstop shall be flat ribbed design 6" wide by 3/16" thick.
 - Expansion joint material shall be performed bituminous expansion joint filler in accordance with ASTM Specification A-994 and shall be provided by the contractor.
 - Backfill behind concrete walls shall not be placed until 14 days after the walls have been poured. After excavation for the structure shall be kept standing until the water is placed.
 - All exposed edges of concrete shall be a depth 2'-0" below grade shall have a 1" x 45° chamfer, unless otherwise noted.
 - All structural steel shapes, plates, and pipe shall conform to ASTM A-36 and ASTM A-53, Grade B.
 - Structural steel shapes, plates, bolts, and pipe shall be detailed and fabricated in accordance with the AISC Steel Construction Manual and after fabrication shall be hot dip galvanized in accordance with ASTM Specification A-123 or A-153.
 - Pipe sleeve assemblies shall be standard weight pipe conforming to ASTM Specification A-53, Grade B.
 - Inside surface condition shall be of mill specification.
 - Sleeve shall be hot dip galvanized in accordance with ASTM Specification A-123 after fabrication.
 - The contractor shall take precautions as directed by the Construction Manager to protect existing facilities, both above and below grade.
 - The bottom of the excavation shall be level and well-compacted in accordance with Specification No. 6695-17.
 - Section III. Poor bearing material, as determined by the Construction Manager shall be removed and replaced with crushed stone. Crushed stone shall conform to State of Michigan's Standard 19A as follows: before crushing 100% retained on 1 1/4" sieve, after crushing 100% passing 3/4" sieve, 45-70% passing 3/8" sieve, 15-40% passing No. 8 sieve and 7% pass by washing.
 - Unless otherwise noted, all dimensions shall be as shown unless otherwise specified.
 - The headwall shall be cast normal to the culvert pipes and positioned to provide the intercepts with the embankment slope as shown.
 - All exposed wall surfaces shall be free from fins or protrusions.

6C695W-52
LATEST REVISION "A"

APPROVED UNDER RESPONSIBLE SUPERVISION OF
DI. KAMPMAN RE. 20906
OFFICE OF
COMMONWEALTH ASSOCIATES INC.
209 E WASHINGTON AVE. JACKSON, MICHIGAN
W. H. C. H. H. H. H. H.
APPROVED DATE 4/21/77

CUNNINGHAM ENGINEERS INC.
1518 WOODWARD AVE. JACKSON, MICHIGAN 49201
PROJECT 79033

OTHER APPROVALS

NO.	DATE	DESCRIPTION	APPROVED
1	8/29/77	ISSUE FOR CONST. 6-24-77	

THE DETROIT EDISON CO. ENGINEERING DEPARTMENTS
ON-SITE FLY ASH BASIN DISCHARGE DIVERSION
ACCESS ROAD CULVERT DETAILS
WASTEWATER TREATMENT FACILITIES
LOCATION MONROE POWER PLANT

REVISOR'S NAME: **J. M. CAMPBELL**
DATE: **4/21/77**

REVISION: **REVISED DRAWING TO DEPICT AS BUILT CONDITIONS.**

NO.	DATE	DESCRIPTION	APPROVED
1	4/21/77	ISSUE FOR CONST. 6-24-77	

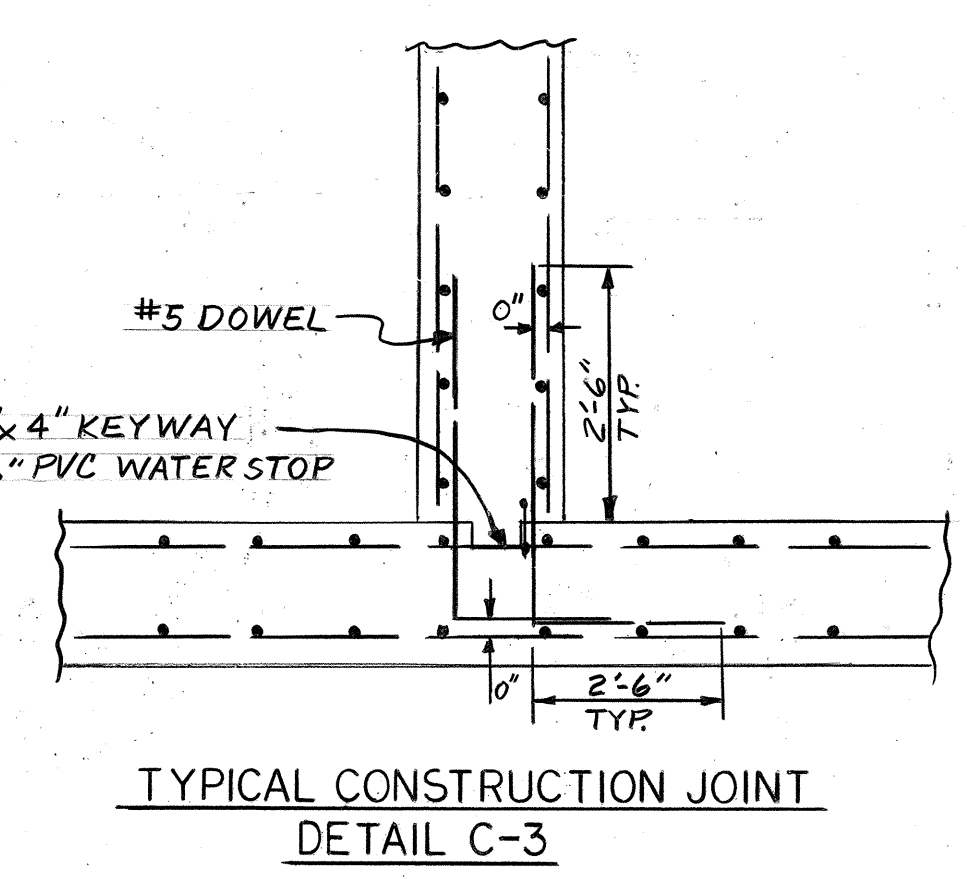
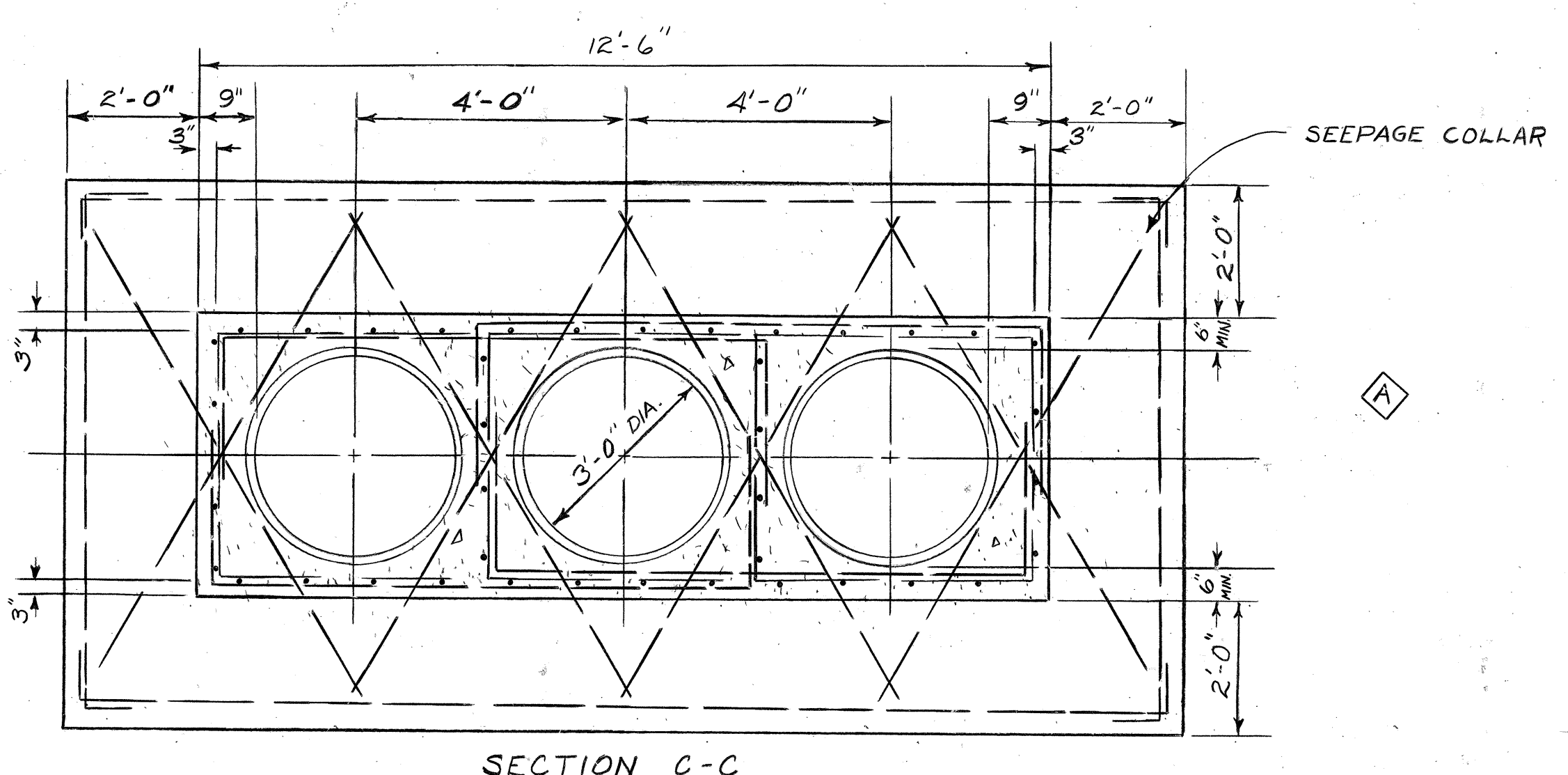
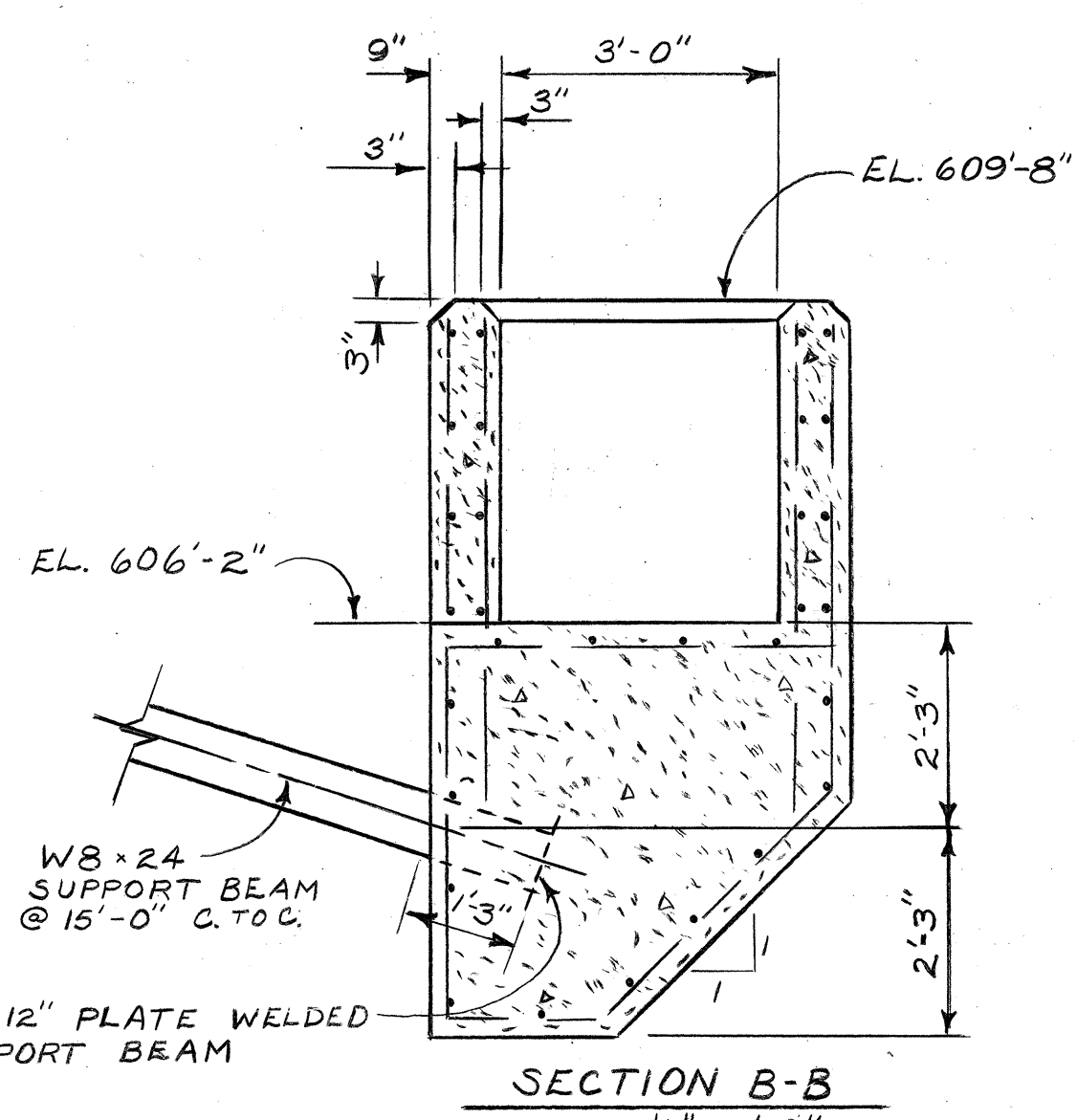
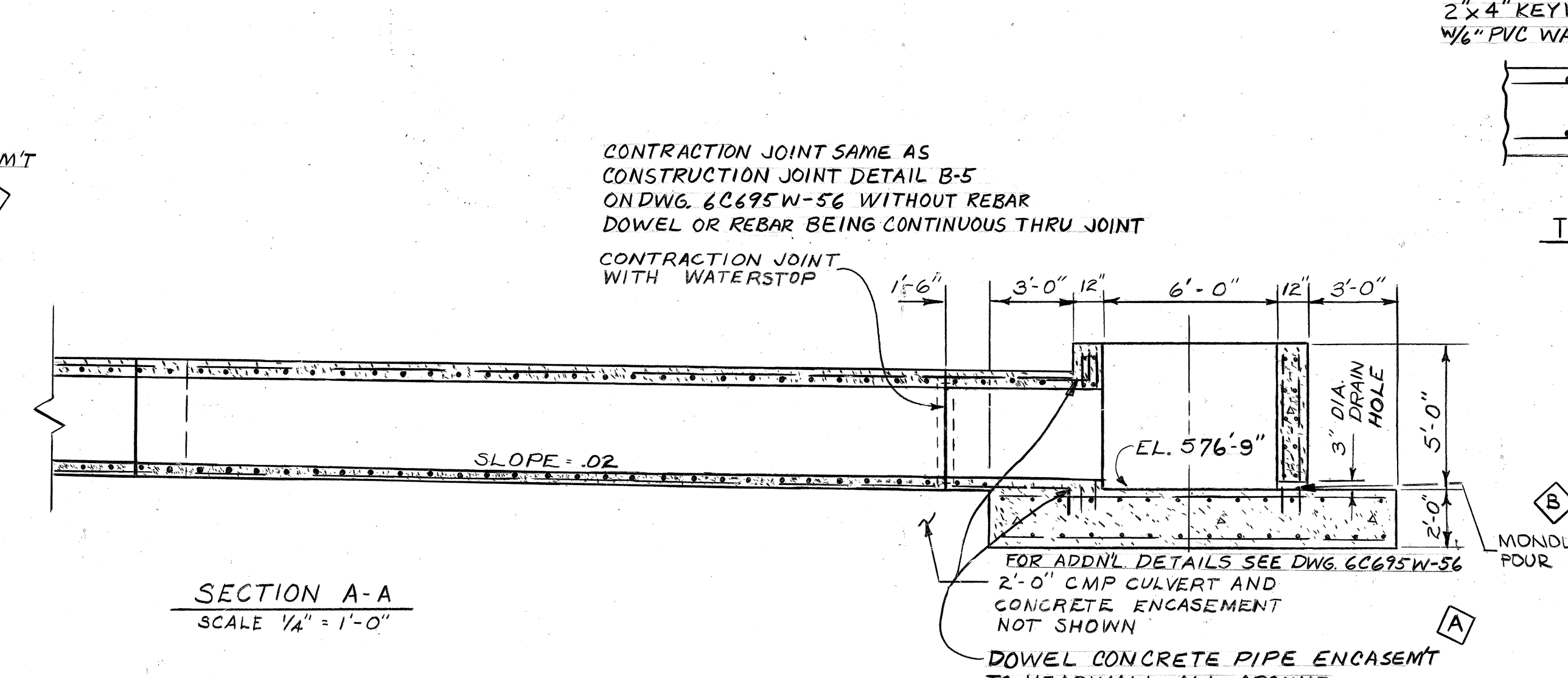
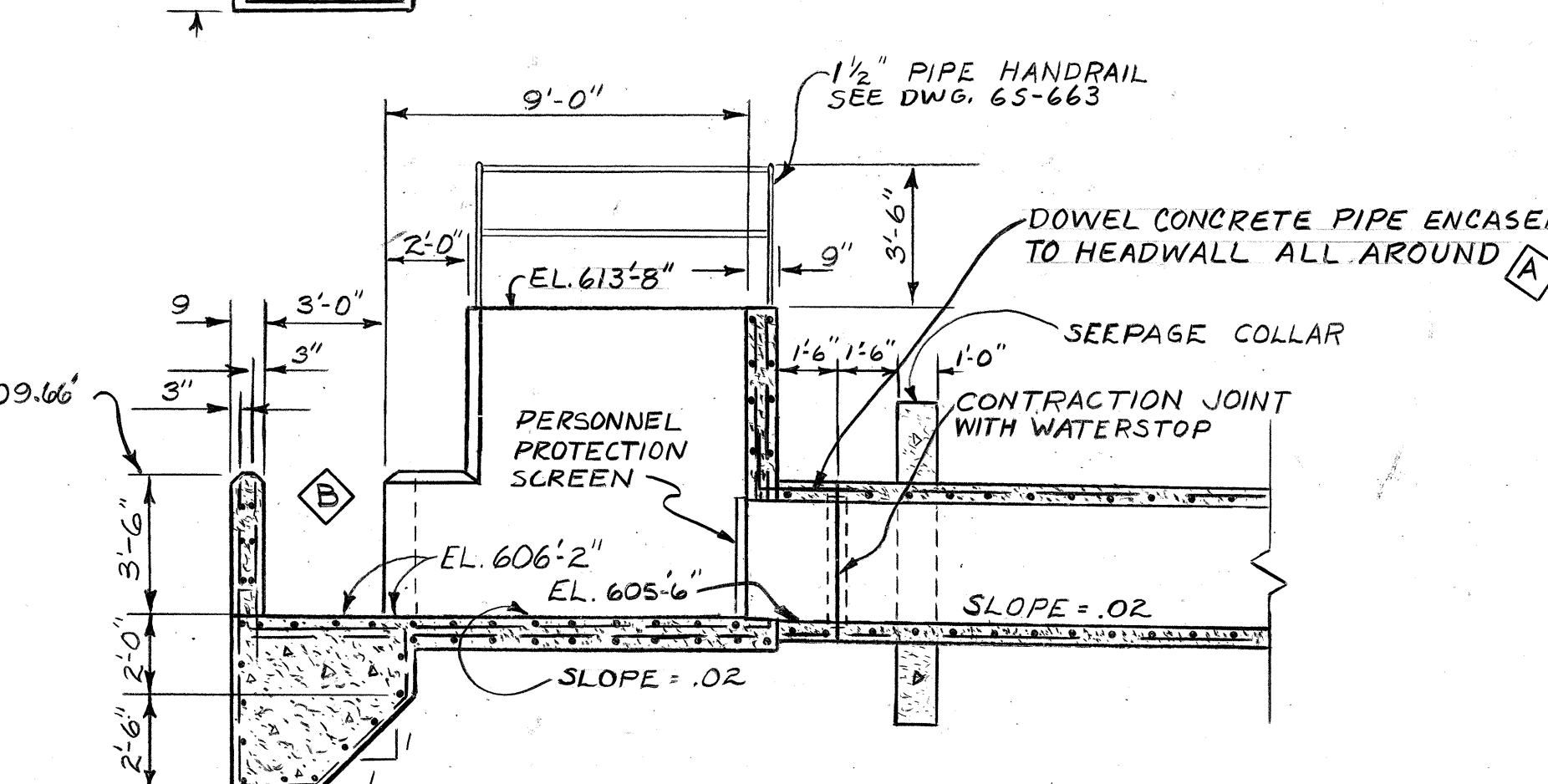
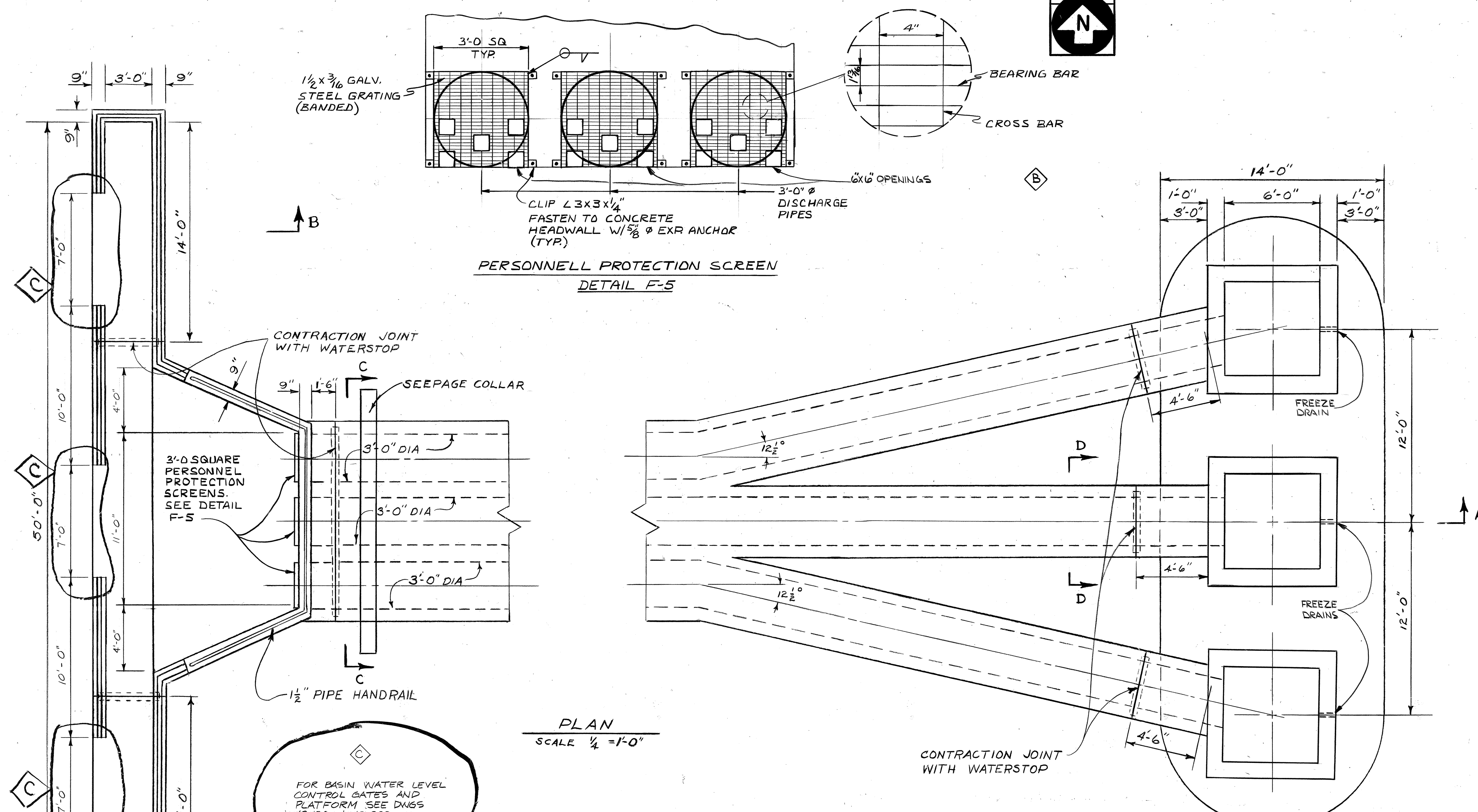
DRAWING NUMBER: **6C695W-52**
SCALE: **AS NOTED**
ORDER WORK: **6EPIAO**

PROJ. ENG.	PROJ. DIR.	ARCH-CIVIL	ELECT.	MECH.	OPFW
MADE BY	DATE	ARCH-CIVIL	ELECT.	MECH.	OPFW
CHK BY	DATE	MECH.	DIV. DIRECTOR	CHK BY	DATE

STATIONS ENG.

DATE: **08T 12 1979**

DC FORM 28 71 REV. 8-71 PTO. 11-76



GENERAL NOTES

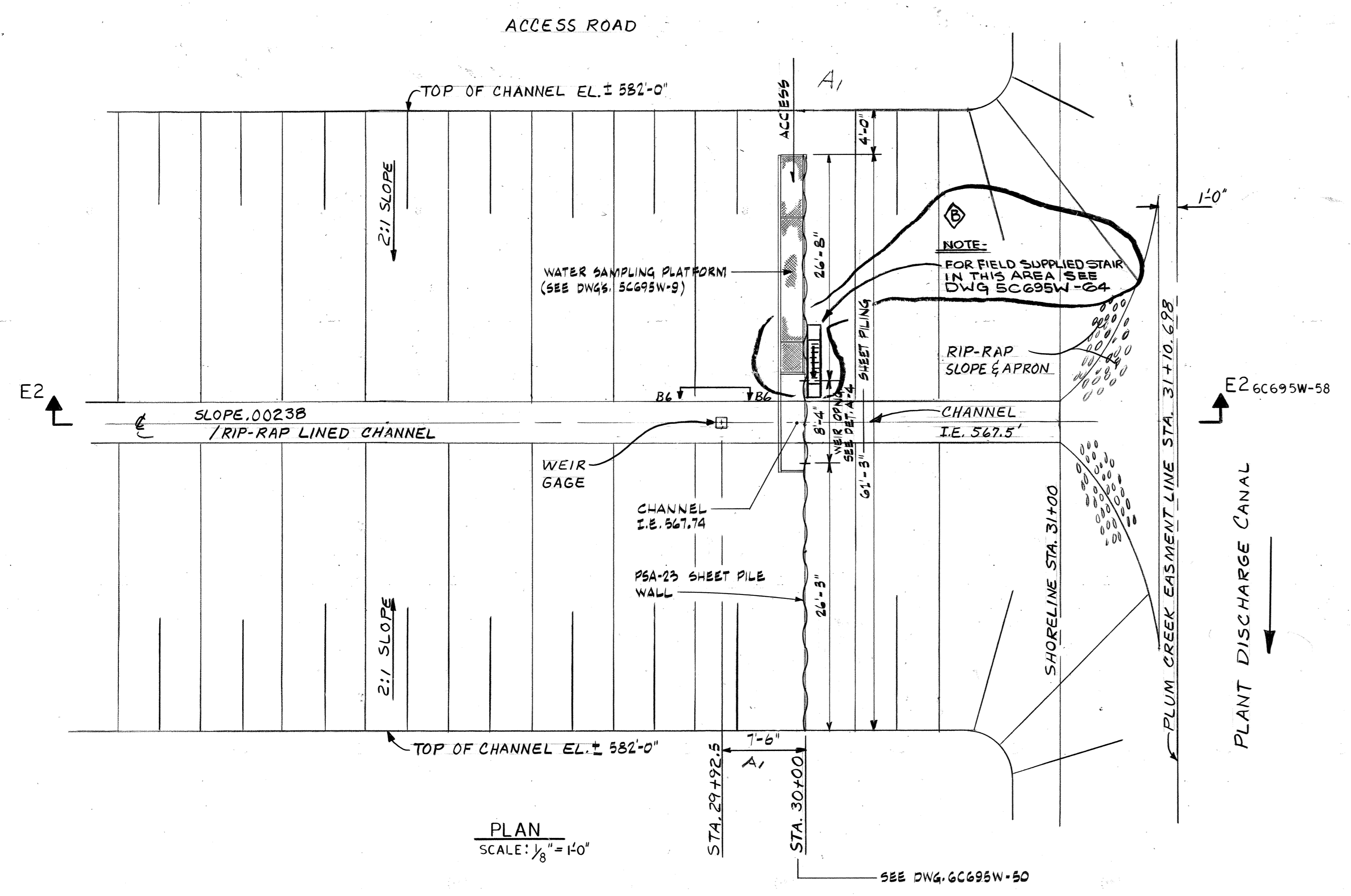
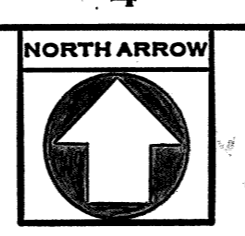
- All concrete work and reinforcing steel placement shall be in accordance with Specification No. 0694-17, Section III and IV.
- All concrete shall be air entrained developing a compressive strength of 3750 PSI at 28 days, unless otherwise noted.
- All reinforcing steel shall be deformed bars in accordance with ASTM Specification A-615, Grade 60, and shall have a minimum of 2" of concrete cover from a formed concrete surface and a minimum of 3" of concrete cover from an unformed concrete surface, unless otherwise noted.
- All reinforcing steel shall be #5 bars at 12 inches on center, unless otherwise noted.
- Lap splices shall be Class B or C tension lap splices in accordance with ACI 318, unless otherwise noted.
- Standard 90° hook shall be in accordance with Paragraph 2.1.1.2 of ACI 318.
- Unless otherwise noted, all horizontal concrete surfaces shall have a wood float finish.
- P.V.C. waterstop shall be flat ribbed design 6" wide by 3/16" thick.
- Expansion joint material shall be preformed bituminous expansion joint filler in accordance with ASTM Specification 994 and shall be provided by the contractor and installed the full depth of the concrete unless otherwise noted.
- Waterproofing as shown on the drawings of exterior surfaces of concrete walls shall be a hot mop coat of asphalt in accordance with ASTM Specification D449, Type B, waterproofing shall be applied in accordance with manufacturer's recommendations.
- Backfill behind concrete walls shall not be placed until 14 days after the walls have been poured. The excavation for the structure shall be kept free of standing water until the backfill is placed.
- All exposed edges of concrete to a depth 2'-0" below grade shall have a 1" x 45° chamfer, unless otherwise noted.
- All structural steel shapes, plates, and pipe shall conform to ASTM A-36 and ASTM A-53, Grade B.
- All structural steel connections shall be either welded or bolted. Bolted connections shall be friction type using bolts conforming to ASTM A-325. Welded connections shall be done in accordance with the "Structural Welding Code" of the American Welding Society and shall use E70XX Electrodes. Weld shall be minimum 1/8" unless otherwise noted.
- All cast-in anchor bolts shall conform to ASTM A-307. Cast-in anchor bolts shall not be shop painted.
- Structural steel shapes, plates, bolts, and pipe shall be detailed and fabricated in accordance with the AISC Steel Construction Manual and after fabrication shall be hot dip galvanized in accordance with ASTM Specification A-123 or A-153, unless otherwise noted.
- All expansion joints shall conform to the following requirements and shall be installed per manufacturer's recommendations:
 - Min. embedment 2.75"
 - Steel bolt, nut and washer 7,800 lbs. pullout strength
 - 6C695W-56 1/2" x 4" x 1/2" PVC Waterstop
 - Min. thread length 1.5"
- The contractor shall take precautions as directed by the Construction Manager to protect existing facilities, both above and below grade.
- The bottom of the excavation shall be level and well-compacted in accordance with Specification No. 0695-17, Section III. Backfill material, as determined by the Construction Manager, shall be removed and replaced with crushed stone. Crushed stone shall conform to State of Michigan's Standard 19A as follows: before crushing 100% retained on 1 1/4" sieve, after crushing 100% passing 3/4" sieve, 45-70% passing 3/8" sieve, 15-40% passing No. 8 sieve and 7% loss by washing.

REFERENCE DRAWINGS:
6C695W-56 Layout-On-Site Fly Ash Disposal Facility Discharge Structure W.T.F.
65-663- TYPICAL DETAILS-RAILINGS, W.T.F.

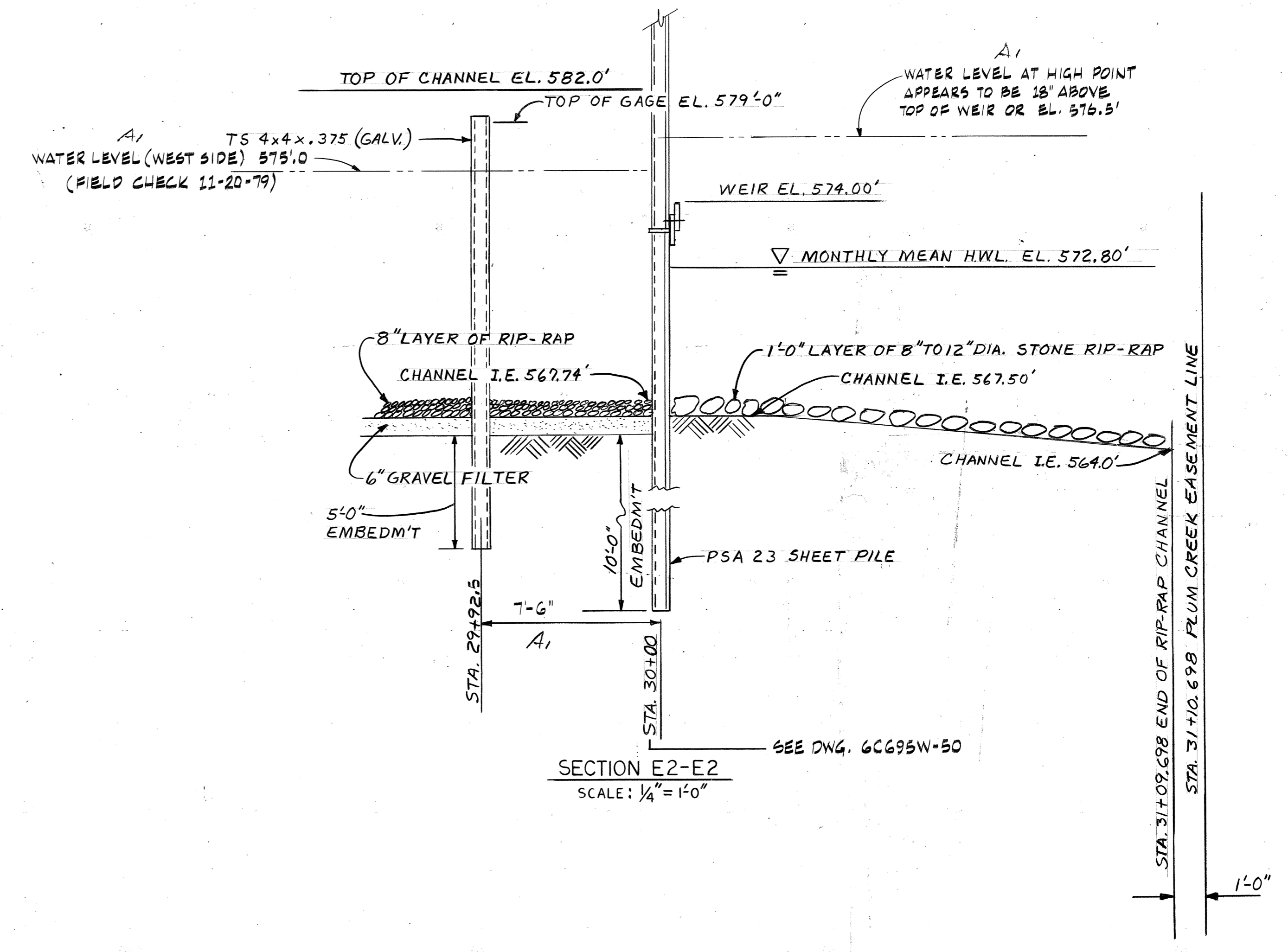
6C695W-57
LATEST REVISION 'C'

PREPARED UNDER RESPONSIBLE SUPERVISION OF D. KAMPMAN PE 20906		DATE: 6/22/77	
COMMONWEALTH ASSOCIATES INC. 209 E. WASHINGTON AVE. JACKSON, MICHIGAN		DATE: 6/23/77	
E.C.T. M.K. [Signature]		DATE: 6/23/77	
PRE-CONSTRUCTION REVISIONS			
THE DETROIT EDISON CO. ENGINEERING DEPARTMENT			
ARCH-CIVIL	DATE: 6/22/77	DRN	DATE: 6/22/77
CONTROL & ELECT.	DATE: 6/23/77	DRN	DATE: 6/23/77
MECH.	DATE: 6/23/77	DRN	DATE: 6/23/77
TITLE: CONCRETE DETAILS - ON SITE FLY ASH DISPOSAL FACILITY DISCHARGE STRUCTURE			
LOCATION: WASTEWATER TREATMENT FACILITY MONROE POWER PLANT			
APERT. CD. TITLE: DOCUMENT CONTROL NO.			
DRAWING NUMBER: 6C695W-57			
SCALE: AS NOTED			
DRAWN BY: [Signature]			
DATE: 6/22/77			
CHECKED BY: [Signature]			
DATE: 6/23/77			
APPROVED BY: [Signature]			
DATE: 6/23/77			

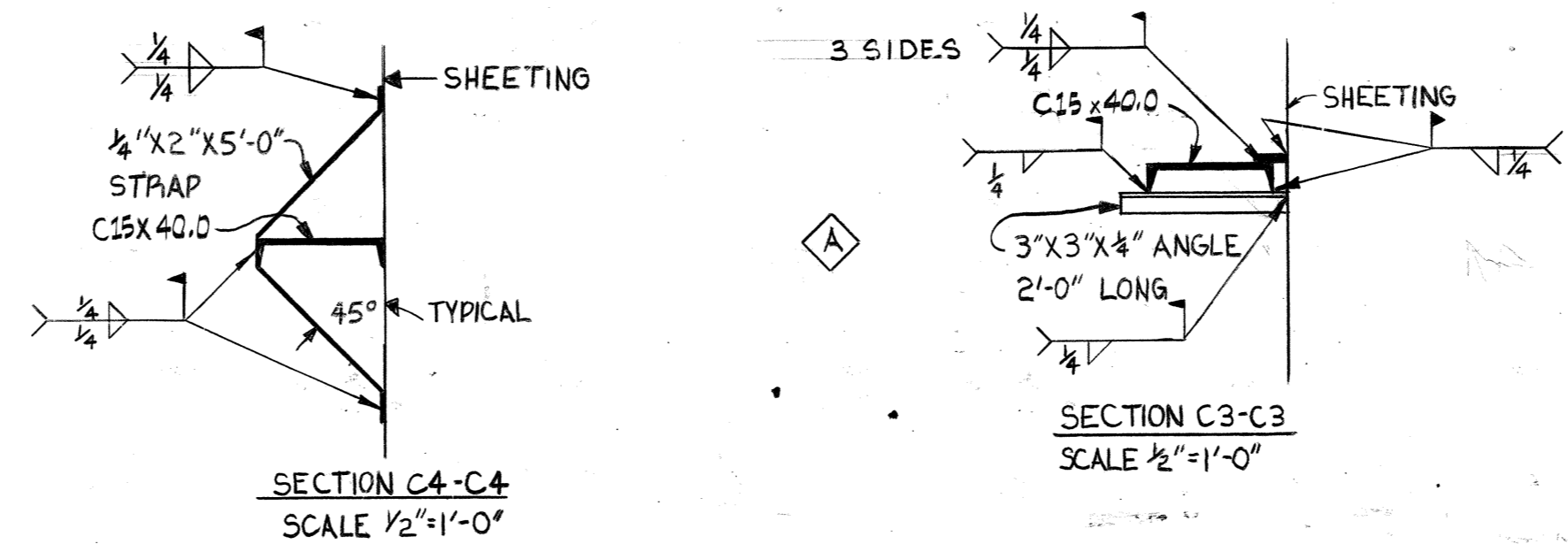
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PROJ. ENG.	PROJ. DIR.	PROJ. ENG.	PROJ. DIR.	PROJ. ENG.	PROJ. DIR.	PROJ. ENG.	PROJ. DIR.	PROJ. ENG.	PROJ. DIR.	PROJ. ENG.	PROJ. DIR.	PROJ. ENG.	PROJ. DIR.	PROJ. ENG.	PROJ. DIR.	PROJ. ENG.	PROJ. DIR.
ADDED BASIN LEVEL CONTROL GATES AND PLATFORM FOR RECORD ONLY.																	
REVISED DRAWING TO DEPICT AS BUILT CONDITIONS.																	
ADDED DETAILS C-3, ADDED REBAR TO SECTION C-C AND SECTION A-A																	
MADE BY	DATE	ARCH-CIVIL	ELECT.	MADE BY	DATE	ARCH-CIVIL	ELECT.	MADE BY	DATE	ARCH-CIVIL	ELECT.	MADE BY	DATE	ARCH-CIVIL	ELECT.	MADE BY	DATE
CHK BY	DATE	MECH.	DIV. DIRECTOR	CHK BY	DATE	MECH.	DIV. DIRECTOR	CHK BY	DATE	MECH.	DIV. DIRECTOR	CHK BY	DATE	MECH.	DIV. DIRECTOR	CHK BY	DATE
CUNNINGHAM ENGINEERS INC.																	
JUL 7 1977																	



PLAN
SCALE: 1/8" = 1'-0"



SECTION E2-E2
SCALE: 1/4" = 1'-0"

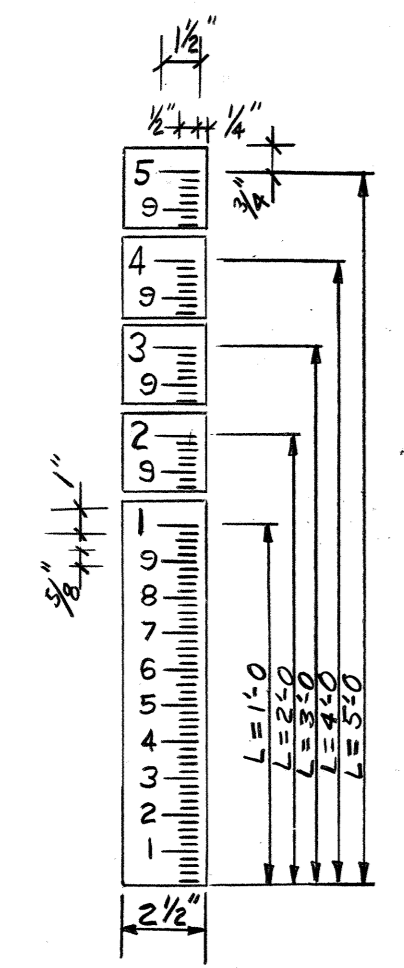


SECTION C4-C4
SCALE: 1/2" = 1'-0"

SECTION C3-C3
SCALE: 1/2" = 1'-0"

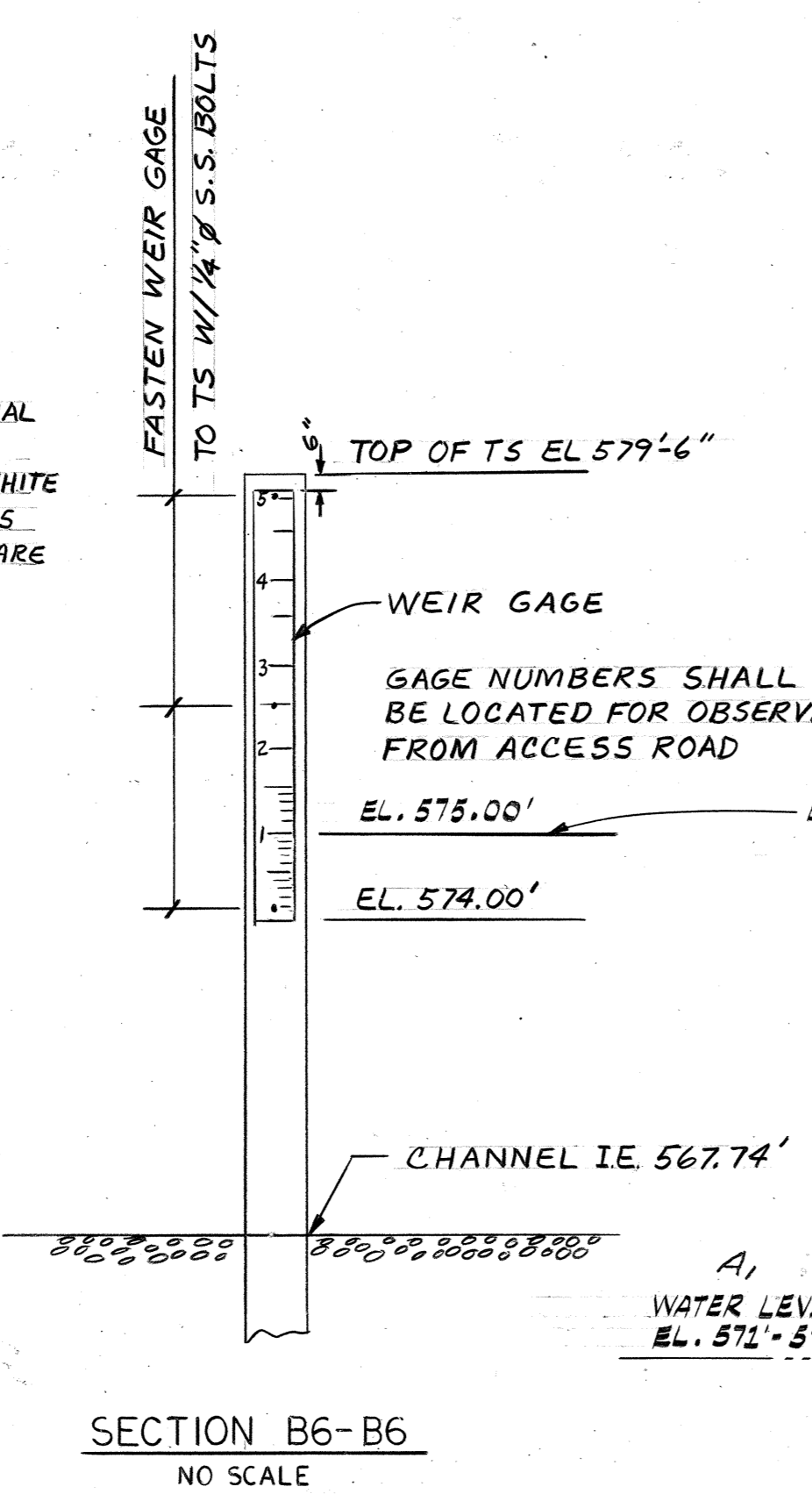
REFERENCE DRAWINGS:
6C695W-50 ON-SITE FLY ASH BASIN
DISCHARGE DIVERSION
SITE PLAN W.T.E.

GENERAL NOTES:
1. ALL WORK SHALL BE IN ACCORDANCE WITH SPECIFICATION NO. 0695-12
2. FOR ADDITIONAL NOTES, SEE DRAWING 6C695W-57
3. SEE DWG. 6C695W-50 FOR LOCATION OF STRUCTURES.

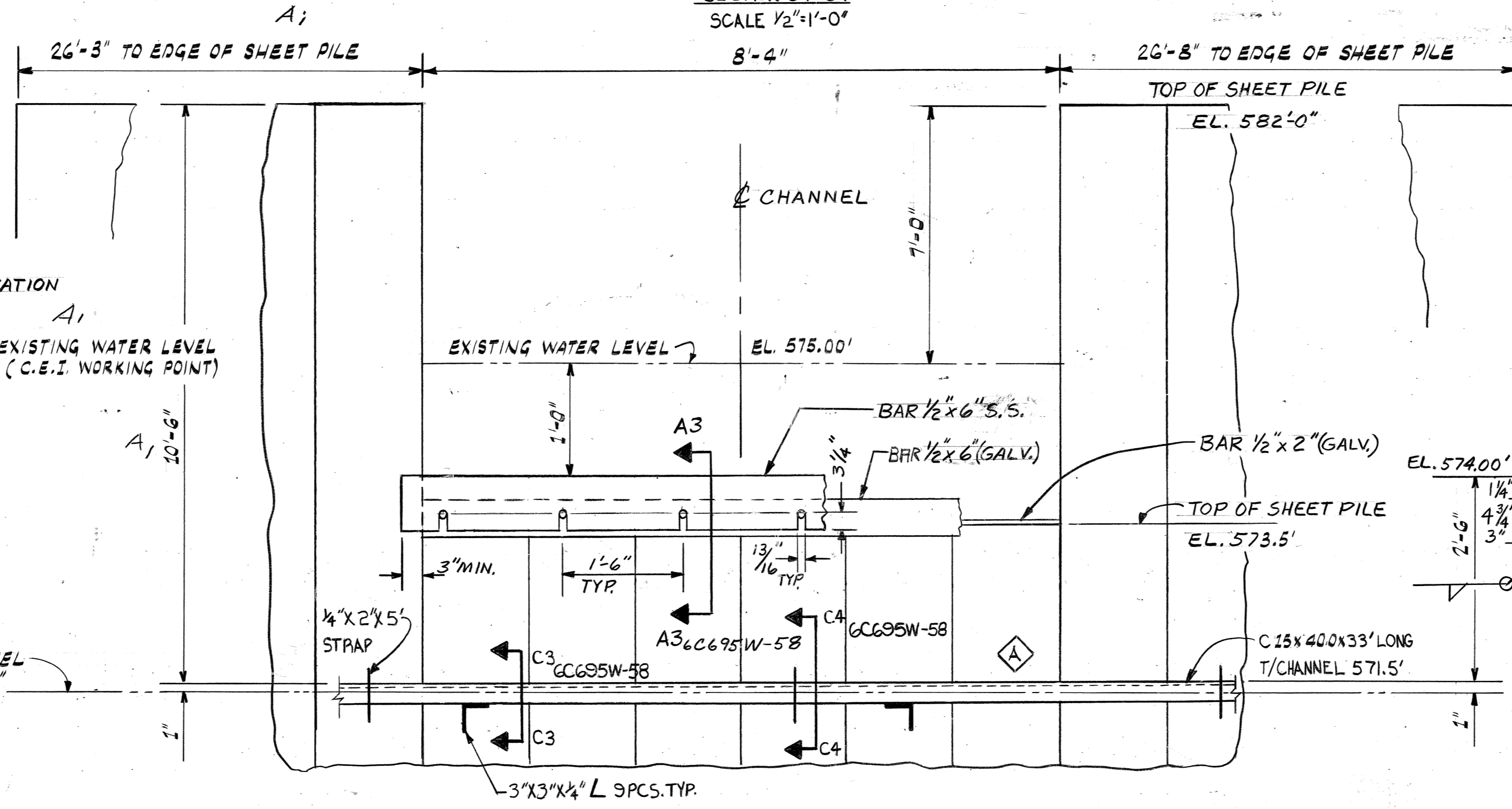


WEIR GAGE DETAIL

NOTES
MATERIAL OF 18 GAGE (U.S. STANDARD) METAL COATED WITH SUBSTANTIAL THICKNESS OF PORCELAIN ENAMEL FACE OF GAGE IS WHITE NUMERALS AND GRADUATIONS ARE BLACK. GRADUATIONS ARE SHARP AND ACCURATE TO DIMENSIONS SHOWN.



SECTION B6-B6
NO SCALE



DETAIL A4 (LOOKING WEST)
SCALE: 3/4" = 1'-0"

SECTION A3-A3
SCALE: 3/4" = 1'-0"

REVISION NOTE
REV A1 INDICATES FIELD MEASUREMENTS TAKEN BY CUNNINGHAM ENG. AT REQUEST OF D.E.C.

PREPARED UNDER RESPONSIBLE SUPERVISION OF D. KAMPMAN PE 20906 AT OFFICE OF COMMONWEALTH ASSOCIATES INC. 209 E. WASHINGTON AVE. JACKSON, MICHIGAN		NO.	DATE	DESCRIPTION	APPROVED
PROJECT: 79033		1	7/15/77	ISSUE FOR CONST. 7/15/77	
PRE-CONSTRUCTION REVISIONS					
THE DETROIT EDISON CO. ENGINEERING DEPARTMENTS					
TITLE: LAYOUT AND DETAILS-ON SITE DISCHARGE					
FLOW MEASUREMENT WEIR STRUCTURE					
WASTE WATER TREATMENT FACILITY					
LOCATION: MONROE POWER PLANT					
DOCUMENT CONTROL NO.					
DRAWING NUMBER: 6C695W-58					
SCALE: AS NOTED USE DIMENSIONS DO NOT SCALE					
DRAWN BY: J.H. MILLER DATE: 7/12/77					
CHECKED BY: J.H. MILLER DATE: 7/12/77					
PROJECT ENGINEER: J.H. MILLER DATE: 7/12/77					
PROJECT DIRECTOR: M.D. MULLER DATE: 7/15/77					
APPROVED BY: J.H. MILLER DATE: 7/15/77					

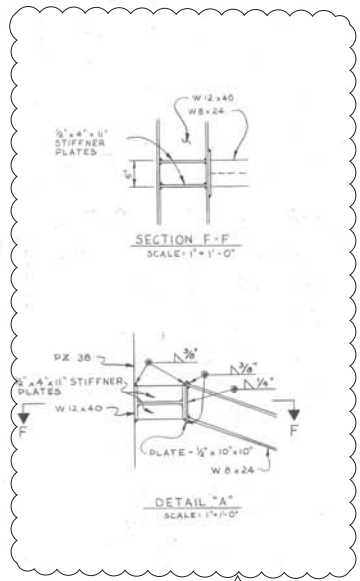
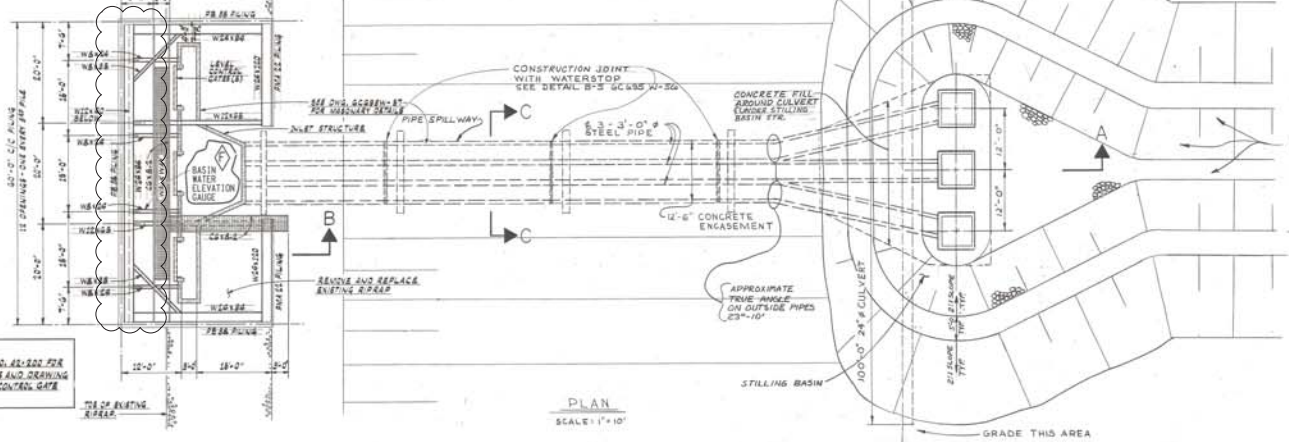
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NOTE RE. STAIR ADDED																	
REVISED DRAWING TO DEPICT AS BUILT CONDITIONS AND ADDITION OF PLATFORM AND SKINNER FOR WEIR.																	
DRAWN BY: J.H. MILLER DATE: 7/12/77																	
CHECKED BY: J.H. MILLER DATE: 7/12/77																	
PROJECT ENGINEER: J.H. MILLER DATE: 7/12/77																	
PROJECT DIRECTOR: M.D. MULLER DATE: 7/15/77																	
APPROVED BY: J.H. MILLER DATE: 7/15/77																	

6C695W-58
LATEST REVISION "B"

APPENDIX D

MONROE ASH BASIN DISCHARGE STRUCTURE DRAWING

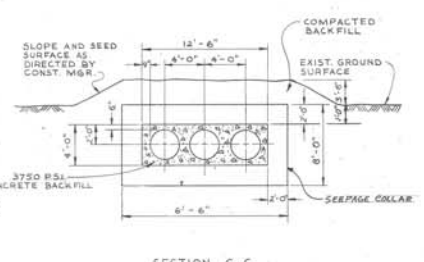
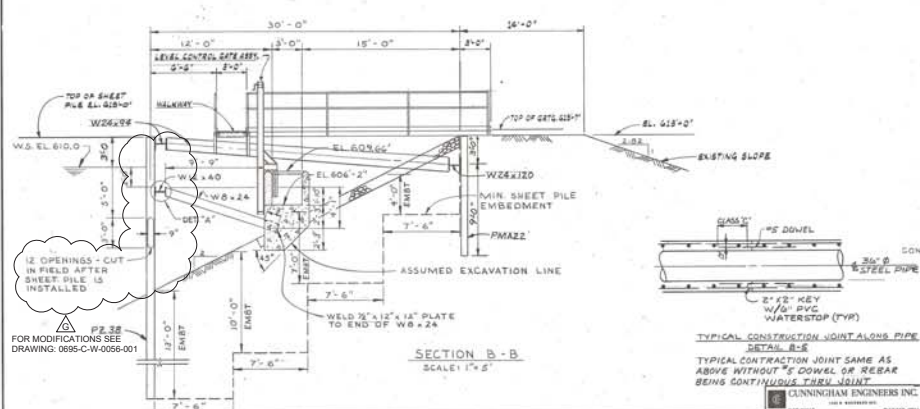
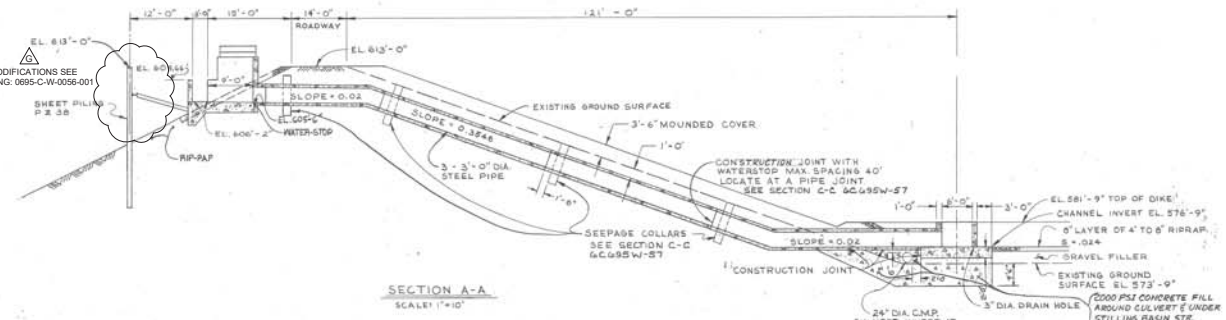
FOR MODIFICATIONS SEE DRAWING: 0695-C-W-0056-001



FOR MODIFICATIONS SEE DRAWING: 0695-C-W-0056-001

NOTE:
SEE DRAWING NO. 02-202 FOR WALKWAY DETAILS AND DRAWING NO. 02-198 FOR CONTROL GATE DETAILS.

FOR MODIFICATIONS SEE DRAWING: 0695-C-W-0056-001



6C695W-56
LATEST REVISION
G

RELEASED UNDER A PROFESSIONAL SUPERVISION OF D. J. CAMPBELL PE 20906 COMMONWEALTH ASSOCIATES INC. 200 E. WASHINGTON AVE. JACKSON, MISSISSIPPI CFB MLK		THE DETROIT EDISON CO. ENGINEERING DEPARTMENT	
PROJECT NO. 170033 SHEET NO. 5	TITLE: LAYOUT - ON-SITE FLAY ASH DISPOSAL FACILITY DISCHARGE STRUCTURE WASTEWATER TREATMENT PLANT LOCATION: MONROE POWER PLANT	DRAWN BY: C.T. BERGMAN CHECKED BY: J. BERGMAN DATE: 12/17/11	PROJECT DOCUMENT CONTROL NO. 170033-05 AS NOTED 6C695W-56 8EPIAO

NO.	DATE	BY	CHKD.	DESCRIPTION
1	12/17/11	C.T. BERGMAN	J. BERGMAN	ISSUE FOR PERMIT
2	1/10/12	J. BERGMAN	C.T. BERGMAN	REVISED DRAWING TO REFLECT AS-BUILT CONDITIONS
3	1/10/12	J. BERGMAN	C.T. BERGMAN	ADDED UPPER WHALER AND ANCHORAGE, LOWERED TOP OF SHEET PILING 3' TO EL. 614.0
4	1/10/12	J. BERGMAN	C.T. BERGMAN	ADDED SEEPAGE COLLAR, CHANGED PIPE DEPTH, CHANGED ROADWAY WIDTH, CHANGED SLOPE, ADDED LOWER PIPE LAYER
5	1/10/12	J. BERGMAN	C.T. BERGMAN	ADDED CONCRETE FILL AROUND CULVERT UNDER STILLING BASIN STR.
6	1/10/12	J. BERGMAN	C.T. BERGMAN	ADDED 12" x 12" PLATE TO END OF W8 x 24
7	1/10/12	J. BERGMAN	C.T. BERGMAN	ADDED 2" x 12" KEY W/ 2" PVC WATERSTOP (TYP)

