MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
PERMIT

Mr. Greg Baderschneider
City of Mt Pleasant
401 North Main
Mt Pleasant, MI 48858

Permit No. 02-37-0003-P
Issued July 3, 2002
Extended
Revised
Expires December 31, 2003

Under the provisions of the Natural Resources and Environmental Protection Act 451, PA 1994, as amended and specifically:

- ☒ **Part 301 Inland Lakes and Streams**
- ☐ **Part 315 Dam Safety**
- ☐ **Part 325 Great Lakes Submerged Lands**
- ☐ **Part 323 Shorelands Protection and Management**
- ☐ **Part 303 Wetland Protection**
- ☐ **Part 353 Sand Dune Protection and Management**
- ☒ **Part 31 Floodplain/Water Resources Protection**

Permission is hereby granted, based on permittee assurance of adherence to State requirements and permit conditions to:

Permitted Activity:

Remove an existing dam, construct 5 rock weirs, construct 3 canoe landings, construct pathways, construct a pedestrian bridge and place riprap and 2,573 cubic yards of fill within the Chippewa River and the floodplain of the Chippewa River as shown on the attached plans.

Construct a temporary cofferdam as shown on the attached plans.

Water Course Affected: Chippewa River
Property Location: Isabella **County,** City of Mt Pleasant, **Section** 15
Subdivision, Lot **Town/Range** 14N, 4W **Property Tax No.**

Authority granted by this permit is subject to the following limitations:

A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
B. The permittee in exercising the authority granted by this permit shall not cause unlawful pollution as defined by Part 31, Floodplain/Water Resources Protection of the Natural Resources and Environmental Protection Act 451, PA 1994, as amended.
C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
D. All work shall be completed in accordance with the plans and the specifications submitted with the application and/or plans and specifications attached hereto.
E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved herein.
F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with Act 53 of the Public Act of 1974 and comply with each of the requirements of that act.
G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits or complying with other state statutes.
H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
I. Permittee shall notify the Department of Environmental Quality within one week after the completion of the activity authorized by this permit, by completing and forwarding the attached, preaddressed post card to the office addressed thereon.
J. This permit shall not be assigned or transferred without the written approval of the Department of Environmental Quality.
K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific State Act, Federal Act and/or Rule under which this permit is granted.
L. Work to be done under authority of this permit is further subject to the following special instructions and specifications:

All work shall be completed in accordance with the attached plans. All work shall be completed as described within the permit application.

Any modification or revision to the approved design plans and/or specifications must be approved in writing by the Department of Environmental Quality.

Submit to this office within 60 days of project completion "as-built" plans, signed and sealed by a qualified design professional licensed by the State of Michigan, certifying that the project including any required compensating cut and fill has been completed in accordance with this permit.

Fill shall consist of inert materials which will not cause siltation nor contain soluble chemicals or organic matter which is biodegradable. All fill shall be contained in such a manner as not to erode into any watercourse and/or wetland. All raw banks shall be stabilized with sod, seed, and mulched or riprapped as necessary to prevent erosion.

Fill shall not be placed in such a manner as to prevent surface water drainage across the site. Site runoff shall be directed to public or natural drainageways and not unnaturally discharged onto adjacent properties.

Compensating cuts for the fill placed within the 100-year floodplain of the Chippewa River shall be made on site for other park projects.

Permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.

Riprap shall consist of stone, rock, or clean broken concrete (containing no protruding steel reinforcement, soil or other fines, asphalt, soluble chemicals, or organic material). Riprap shall be of appropriate weight and dimension necessary to achieve the intended shore protection. Riprap shall be placed mechanically or by hand.

The permittee shall provide passage of flow during and after construction.

Prior to the removal of the existing abutments, cofferdams of steel sheet piling, sand bags, straw bales, or gravel dikes shall be installed in a fashion to isolate all construction activities from the stream flow. Construction of a temporary cofferdam, utilizing on-site materials, is authorized. Upon completion of seawall, cofferdam materials shall be regraded to pre-construction contour, consistent and compatible with adjacent bottomland contour.

If the project, or any portion, is stopped and lies uncompleted for any length of time other than that encountered in a normal work week, every precaution shall be taken to protect the uncompleted work from erosion, including the placement of temporary sandbag riprap or other acceptable temporary protection.

No work shall be done in the stream during periods of above-normal flows except as necessary to prevent erosion.

All excavation and project spoils including organic and inorganic soils, vegetation, and debris shall be placed above the ordinary high water mark, leveled, and stabilized with sod and/or seed, and mulched, in such a manner as not to erode into any waterbody, wetland, or floodplain.

Canoe launches shall be constructed according to the attached plans.

All raw areas resulting from this construction activity shall be promptly and effectively stabilized with seed-mulch and/or sod in sufficient quantity to prevent erosion and subsequent siltation to any watercourse and/or wetland.

In issuing this permit, the Department of Environmental Quality has relied on the information and data which permittee has provided in connection with the permit application. If, subsequent to the issuance of this permit, such information and data prove to be false, incomplete, or inaccurate, the Department may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.

The authority to conduct the activity as authorized by this permit is granted solely under provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, or federal approval or authorizations necessary to conduct the activity.

The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representatives of the permittee, undertaken in connection with this permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.

This permit shall become effective on the date of signature by a Department of Environmental Quality officer. Upon signing by the permittee named herein, this permit must be returned to Land & Water Management Division, Department of Environmental Quality, 503 N. Euclid, Suite 1, Bay City, Michigan, 48706 for final execution.

Russell J. Harding, Director
Department of Environmental Quality

By Joy I. Brooks
Joy I. Brooks
Floodplain Engineer
District Representative
Land and Water Management Division

cc: Isabella CEA
Isabella County Drain Commissioner
City of Mt Pleasant
Wilcox Associates, Inc.

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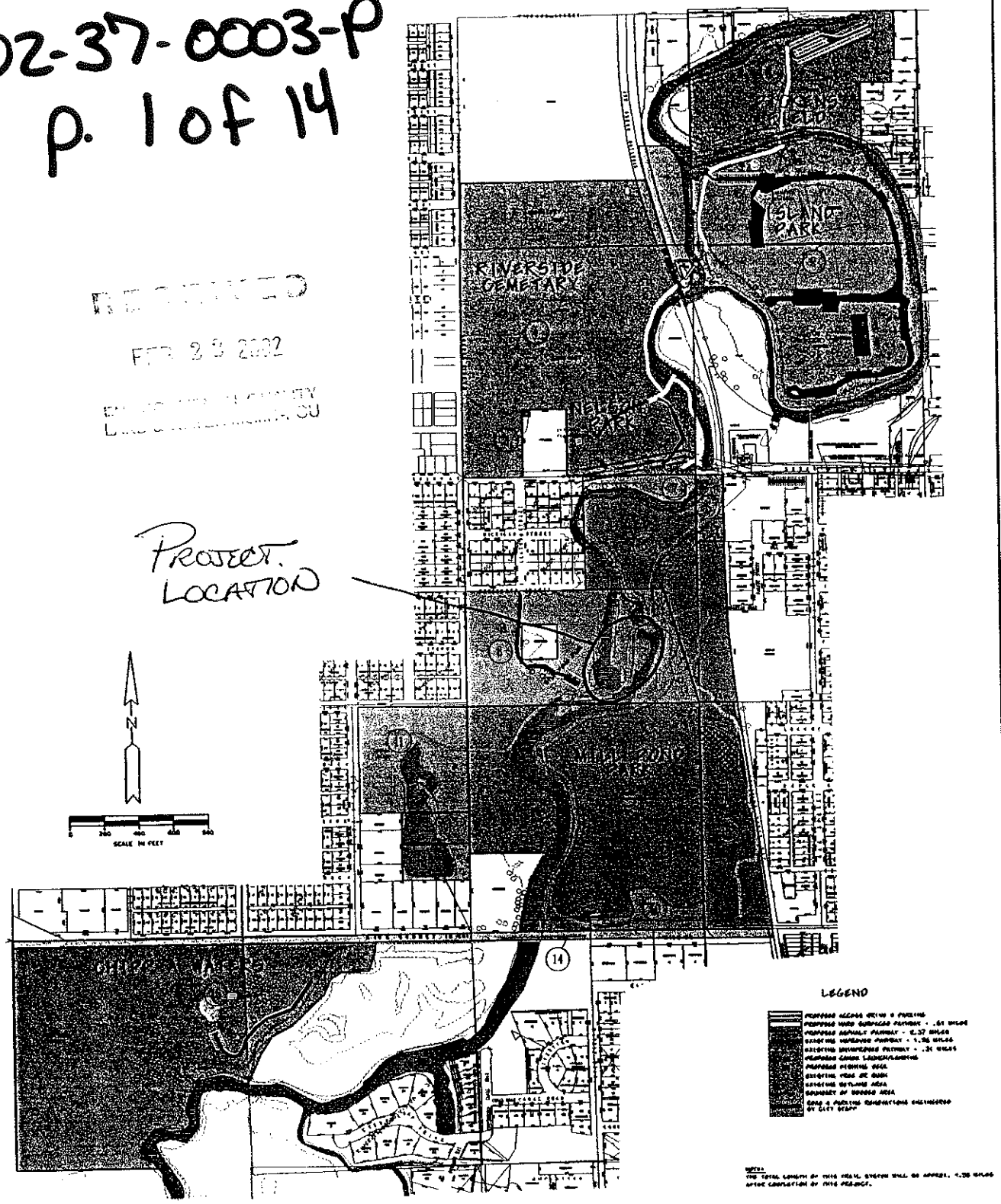

CITY OF MT. PLEASANT
RIVERWALK/TRAIL
PARK DEVELOPMENT PROJECT

PARK PARCEL MAP
SHEET 1

Wade-Trim, Inc.

TAX DESCRIPTIONS

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(1) 17-000-15802-00
COMMENCING 128.5 FEET WEST OF THE NORTHEAST CORNER OF THE NORTHWEST SECTION 15; THENCE SOUTH 17 RODS WEST 20 FEET, SOUTH 8 RODS, WEST 11 RODS SOUTH TO CENTER OF CHIPPEWA RIVER; THENCE NORTHWESTERLY ALONG CENTER OF RIVER TO WEST 1/8 LINE, SECTION 15 NORTH ON SAID 1/8 LINE TO CENTER OF CHIPPEWA RIVER; THENCE NORTHEASTERLY ALONG CENTER OF RIVER TO SECTION LINE; THENCE EAST ALONG SECTION LINE TO POINT OF BEGINNING
(PICKENS FIELD 08/16/1999)

(2) 17-000-15841-00
THAT PART OF NORTHWEST 1/4 OF SECTION 15 BOUNDED ON THE NORTHEAST AND SOUTH BY RIVER, ON WEST BY RIVER AND AA RR
(ISLAND PARK 08/06/1999)

(3) 17-000-15817-00
PART OF THE SOUTHWEST QUARTER (SW 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 15, TOWN 14 NORTH, RANGE 4 WEST, COMMENCING AT A POINT WHICH IS N 89° 34' 30" E 343.20 FEET ALONG THE EAST AND WEST QUARTER LINE OF SECTION 15 AND N 00° 49' 10" E 363.03 FEET FROM THE WEST QUARTER CORNER OF SECTION 15; THENCE N 00° 49' 10" E 42.00 FEET, THENCE N 89° 48' 00" E 40.00 FEET, THENCE S 00° 49' 10" W 42.00 FEET, THENCE S 89° 48' 00 W 40.00 FEET TO THE POINT OF BEGINNING. CONTAINING 0.039 ACRES, MORE OR LESS.

(4) 17-000-15812-00
SECTION 15, TOWN 14 NORTH, RANGE 4 WEST, SOUTH 102 RODS OF WEST 1/2 OF NORTHWEST 1/4 WEST OF AA RR AND WEST OF RIVER, EXCEPT: COMMENCING 320 FEET EAST OF NORTHEAST CORNER BROADWAY AND HARRIS; THENCE NORTH 357.5 FEET, EAST 253.25 FEET, SOUTH 357.5 FEET, WEST TO POINT OF BEGINNING.
(RIVERSIDE CEMETERY AND NELSON PARK)
(714 WEST BROADWAY STREET 08/06/1999)

(5) 17-000-15894-00
COMMENCING AT THE NORTHWEST CORNER OF THE NORTHEAST 1/4 OF THE SOUTHWEST 1/4, THENCE S 89° 59' E, ALONG THE E-W 1/4 LINE 157.08 FEET TO THE CENTER OF THE ANN ARBOR RAILROAD TRACK, THENCE S 0° 48' 30" E, 396.04 FEET ALONG THE CENTER LINE OF THE ANN ARBOR RAILROAD TRACK, THENCE N 89° 59' W, 163.19 FEET TO THE WEST LINE NORTHEAST 1/4 OF THE SOUTHWEST 1/4 OF SAID SECTION 15, THENCE N 0° 04' 23" E, 396.00 FEET TO THE POINT OF BEGINNING.

(6) 17-000-15894-00
COMMENCING AT THE SOUTHWEST CORNER OF THE NORTHEAST OF SOUTHWEST OF SECTION 15; THENCE EAST ON 1/8 LINE 197 6/10 FEET TO THE RIGHT OF WAY OF AA RR; THENCE NORTHERLY ALONG SAID RIGHT OF WAY 929 FEET TO HARRIS BROTHERS MILL PROPERTY WEST 140 FEET TO 1/8 LINE; THENCE NORTH ON 1/8 LINE 399 4/10 FEET TO SECTION LINE WEST ON SECTION LINE 647 FEET TO LEATON & UPTON ADDITION SOUTH 660 FEET TO SOUTHEAST CORNER LEATON & UPTON ADDITION EAST 448 FEET TO EAST SIDE OF HEAD RACE; THENCE SOUTH AND SOUTHEASTERLY ALONG HEAD RACE AND MILL POND 716 FEET TO A PLACE OF BEGINNING EXCEPT ALL THAT PART OF NORTHEAST OF NORTHWEST OF SOUTHWEST OF SECTION 15 LYING NORTH OF CHIPPEWA RIVER AND SOUTH OF 1/4 LINE INCLUDED IN ABOVE DESCRIPTION PROPERTY CONTINUES COMMENCING AT NORTHWEST CORNER OF SOUTHEAST OF SOUTHWEST OF SECTION 15 EAST TO AA RR RIGHT OF WAY SOUTHERLEY ALONG SAID RIGHT OF WAY 80 RODS WEST 20 RODS NORTH 80 RODS TO POINT OF BEGINNING
(MILLPOND PARK 08/06/1999)

(7) 17-000-15889-00
PARCEL OF LAND NORTH OF AND WEST OF CHIPPEWA RIVER IN NORTHEAST 1/4 OF NORTHWEST 1/4 OF SOUTHWEST 1/4 SECTION 15.
(MILLPOND PARK 08/06/1999

MP > (8) 17-000-15890-00
THAT PART OF SOUTH 1/2 OF NORTHWEST 1/4 OF SOUTHWEST 1/4 SECTION 15 LYING WEST OF EAST LINE OF HEAD RACE AND MILL POND. EXCEPT BEGINNING 200 FEET SOUTH OF CENTER FESSEDEN AND LEATON STREETS. EXTENDED. THENCE SOUTH 200 FEET, EAST 200 FEET, NORTH 200 FEET, WEST 200 FEET TO THE POINT OF BEGINNING.
(MILLPOND PARK 08/06/1999)

(9) 17-000-15891-00
SECTION 15, TOWN 14 NORTH, RANGE 4 WEST, PART OF SOUTHWEST 1/4 OF SOUTHWEST 1/4 EXCEPT THAT PART LYING SOUTH OF MILL POND IN SOUTHEAST 1/4 OF SOUTHWEST 1/4 OF SOUTHWEST 1/4 OF CITY
(MILLPOND PARK 08/06/1999)

(10) 17-000-15892-00
ALL OF SOUTHEAST 1/4 OF SOUTHWEST 1/4 OF SOUTHWEST 1/4 LYING SOUTH OF MILL POND SECTION 15
(MILLPOND PARK 08/06/1999)

(11) 17-000-16112-00
SECTION 16, TOWN 14 NORTH, RANGE 4 WEST, NORTH 621.8 FEET OF EAST 1/2 OF SOUTHEAST 1/4 OF SOUTHEAST 1/4 LYING WEST OF CHIPPEWA RIVER
(MILLPOND PARK 09/14/1999)

(12) 17-000-16111-00
SECTION 16, TOWN 14 NORTH, RANGE 4 WEST, EAST 1/2 OF EAST 1/2 OF SOUTHEAST OF SOUTHEAST 1/4 OF SECTION 16 LYING EAST OF HIGH WATER MARK OF MILL POND ON CHIPPEWA RIVER.

(13) 17-000-16121-00
THE NORTH 212.50 FEET OF THE SOUTH 520.70 FEET OF THE EAST 1/2 OF THE SOUTHEAST 1/4 OF THE SOUTHEAST 1/4 SECTION 16, TOWN 14 NORTH, RANGE 4 WEST, EXCEPT THE NORTH 273 FEET THEREOF.

(14) M-20 RIGHT OF WAY

(15) 17-000-16502-00
NORTH 1/2 OF NORTHEAST OF SECTION 21 LYING NORTH AND WEST OF MILL POND
(CHIPP-A-WATERS PARK 08/06/1999)

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PARK PARCEL MAP
SHEET 2

Wade-Trim, Inc.
P.O. Box 580
3933 Monitor Road
Bay City, Michigan 48707
517-686-3100

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CHIPPEWA RIVER RESTORATION PROJECT
CITY OF MT. PLEASANT, MICHIGAN
PERMIT APPLICATION SUPPLEMENTAL INFORMATION
MDEQ FILE NO. 02-37-0003-P
Prepared by Wilcox Professional Services, LLC, April 12, 2002

In this document, the Michigan Department of Environmental Quality, Permit Consolidation Unit Application Correction Request items are quoted here and for clarity are italicized. The responses are in regular font.

(1) *Please provide a detailed narrative for the proposed project (for all proposed activities) that includes the construction sequence, the volumes of stone, volumes of riprap, volumes of excavations and/or fills, volumes of floodplain fills, volumes of floodplain excavations, linear feet of sheet pile for weirs and above the dam, the date the sheet pile will be installed above the dam, the date it is proposed for removal, and any other information that may be of importance.*

An overview of the project is provided in narrative form under Item 4 of the application form. Critical construction sequence, as pertains to flow of the river, has been added to the final plans (enclosed). Non-critical construction sequence is left to the contractor. Non-critical means and methods are left to the contractor who will handle logistics in the most efficient way for his/her operation. Fill and excavation volumes are provided in the following table. The entire project is located within the floodplain with only negligible amounts of fill above the Base Flood Elevation.

MATERIAL	CUT (CYD)	FILL (CYD)	NET FILL (CYD)
General Fill (sand)	540	5051	4,511
Riprap	-0-	880	880
Field Stone for Weirs	-0-	1020	1020
Topsoil	-0-	220	220
Concrete (Riprap)	560 (dam/bridge)	100 (weirs)	(460)
Totals	1,100	7,271	6,171

Because of minor changes between the preliminary and final plans, these quantities differ slightly from those computed for the preliminary plans and submitted under part 13 of the permit application.

The total length of temporary cofferdam to be installed upstream of the spillway is 225 linear feet. It is anticipated that the cofferdam will be constructed during the month of June and removed during the month of September.

All other pertinent information about the project is contained in the plans and specifications.

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(3) a. project site plan that shows the floodplain boundaries and elevations (if known), and shows all area of proposed floodplain fill and floodplain excavation (cross hatched or shaded)

The areas of cuts and fills are shown in Attachment 1 along with base flood elevations. It is important to note that all project cuts and fills will be in the floodplain.

(3) d. provide an 8 ½" x 11" reduced copy of all revised plans and 4 full size copies of plans.

These are provided along with this supplemental information.

(6) Volume (in cubic yards) of fill for each river weir, volume of fill for fill area #1, volume of fill for fill area #2, Volume of riprap (scour protection) proposed for around the weirs.

The requested net fill volumes are provided in the following table:

LOCATIONS	VOLUMES (CYD)
Weir 1	265
Weir 2	348
Weir 3	330
Weir 4	97
Weir 5	80
Subtotal	1120
Left Abutment Area	1,407
Fill Area 1	524
Fill Area 2	873
Right Abutment Area	1,166
Trail Area	541
Subtotal	4,511
Riprap	880
Total	7,053

Note: Dam/bridge concrete and topsoil are accounted for in the previous table above.

(7) Linear feet of sheet pile proposed for above the existing dam, and for each of the weirs.

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The linear feet of sheet pile walls are provided in the following table:

WALL DESIGNATION	LINEAR FEET OF WALL
Weir 1	124.5
Weir 2	138
Weir 3	109.5
Weir 4	71.5
Weir 5	79.5
Cofferdam	225
Total	748

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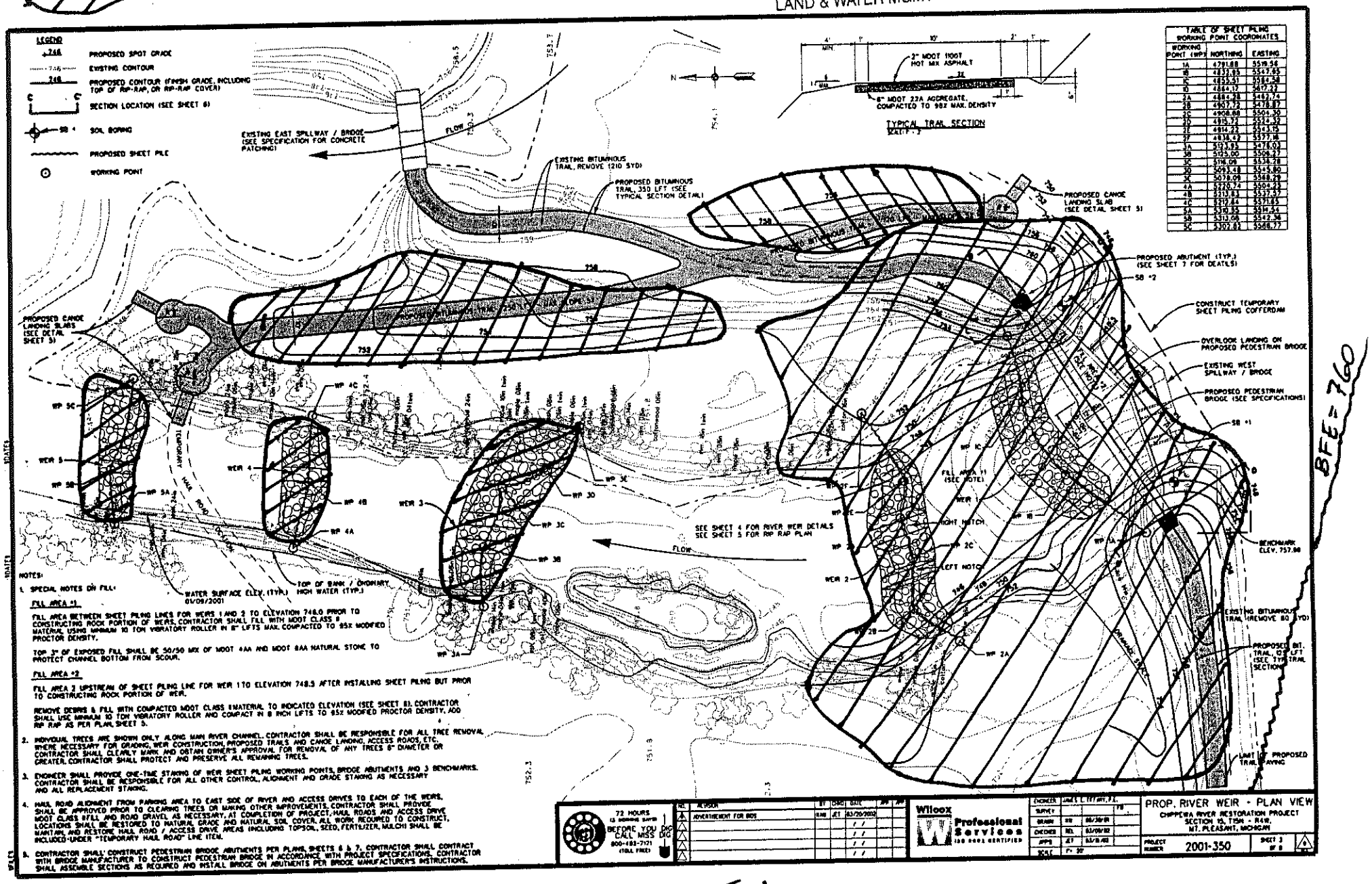
FILL AREA

CUT AREA



ATTACHMENT 1

CITY OF MT. PLEASANT, MI

PLAN OF PROPOSED
CHIPPEWA RIVER RESTORATION PROJECT

MILL POND PARK WEST SPILLWAY REMOVAL, CONSTRUCTION OF RIVER WEIRS AND PEDESTRIAN BRIDGE

COUNTY	CITY	SHEET NO.	TOTAL SHEETS
ISABELLA	MT. PLEASANT	1	8

INDEX TO SHEETS

1. TITLE SHEET
2. REMOVAL - PLAN & PROFILE
3. PROP. RIVER WEIR - PLAN VIEW
4. GENERAL WEIR PLAN & SECTION
5. PROP. RIP RAP PLAN
6. PROPOSED BRIDGE PROFILE & SECTIONS
7. BRIDGE ABUTMENTS
8. SOIL EROSION CONTROL

OPERATIONAL CONSTRAINT NOTES

1. CONTRACTOR SHALL PATCH CONCRETE SURFACES OF EAST DAM AS PART OF "SITE PREPARATION" LINE ITEM PRIOR TO PLACING TEMPORARY SHEET PILING COFFERDAM (SEE SPECIFICATIONS).
2. CONTRACTOR SHALL INSTALL AND MAINTAIN SAFETY FENCING, BARRICADES AND SIGNS TO PREVENT ALL PEDESTRIAN AND NON-CONSTRUCTION VEHICLE ACCESS TO THE SITE AT ALL TIMES (SEE VICINITY MAP, THIS SHEET). SIGNS (4 EACH) SHALL BE SIMILAR IN SIZE AND STYLE TO MDOT R3-3 WITH THE FOLLOWING TEXT: "DANGER! CONSTRUCTION AREA- CLOSED TO PUBLIC"
3. CONTRACTOR SHALL INSTALL TEMPORARY SHEET PILING COFFERDAM AND SHEET PILING FOR WEIR 5 BEFORE COMMENCING OTHER WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN OF THE COFFERDAM IN ACCORDANCE WITH MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2003 INTERIM EDITION, SECTION 704 AND SUBSECTION 104.02.
4. CONTRACTOR SHALL DEWATER AS REQUIRED TO COMPLETE THE WORK (DEMOLITION, COMPACTION OF EXISTING SOILS AND FILL MATERIAL, PLACEMENT OF FILTER FABRIC, ETC.) INCLUDING A WELLPOINT SYSTEM IF NECESSARY. PUMPED WATER SHALL BE DISCHARGED INTO A GEOTEXTILE FILTER BAG AT LEAST 50' FROM THE RIVER DOWNSTREAM OF THE PROJECT.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTING, PRESERVING, AND RELEASING TO THE RIVER, ALL FISH TRAPPED BY DEWATERING OPERATIONS.
6. TEMPORARY SHEET PILING COFFERDAM SHALL BE LEFT IN PLACE UNTIL REMOVAL IS APPROVED BY THE ENGINEER. SHEET PILING SHALL BE REMOVED SLOWLY ENOUGH TO PREVENT DISTURBANCE OF UPSTREAM RIVER BOTTOM SEDIMENTS AND DOWNSTREAM CONSTRUCTION.

WARNING:
CONTRACTOR SHALL TAKE STEPS TO MITIGATE THE EFFECTS OF POTENTIAL OVERTOPPING. THESE SHALL INCLUDE BUT NOT BE LIMITED TO STORING MATERIALS AND EQUIPMENT ON HIGH GROUND AND OBTAINING APPROPRIATE INSURANCE INCLUDING BUILDERS RISK INSURANCE. THE CONTRACTOR SHALL MAKE NO CLAIMS FOR ADDITIONAL PAYMENT FROM THE OWNER AS A RESULT OF DAMAGE OR ADDITIONAL WORK REQUIRED BECAUSE OF OVERTOPPING OR FAILURE OF THE TEMPORARY SHEET PILING.

IT IS IMPORTANT TO NOTE THAT THE UPSTREAM WATER ELEVATIONS WITH THE COFFERDAM IN PLACE WILL BE GREATER THAN NORMAL BECAUSE OF THE REDUCED OVERALL SPILLWAY CAPACITY. THE FEMA BASE FLOOD ELEVATION FOR THE 100-YEAR FLOOD IN THIS AREA IS 760.0 WITH BOTH SPILLWAYS FUNCTIONAL.

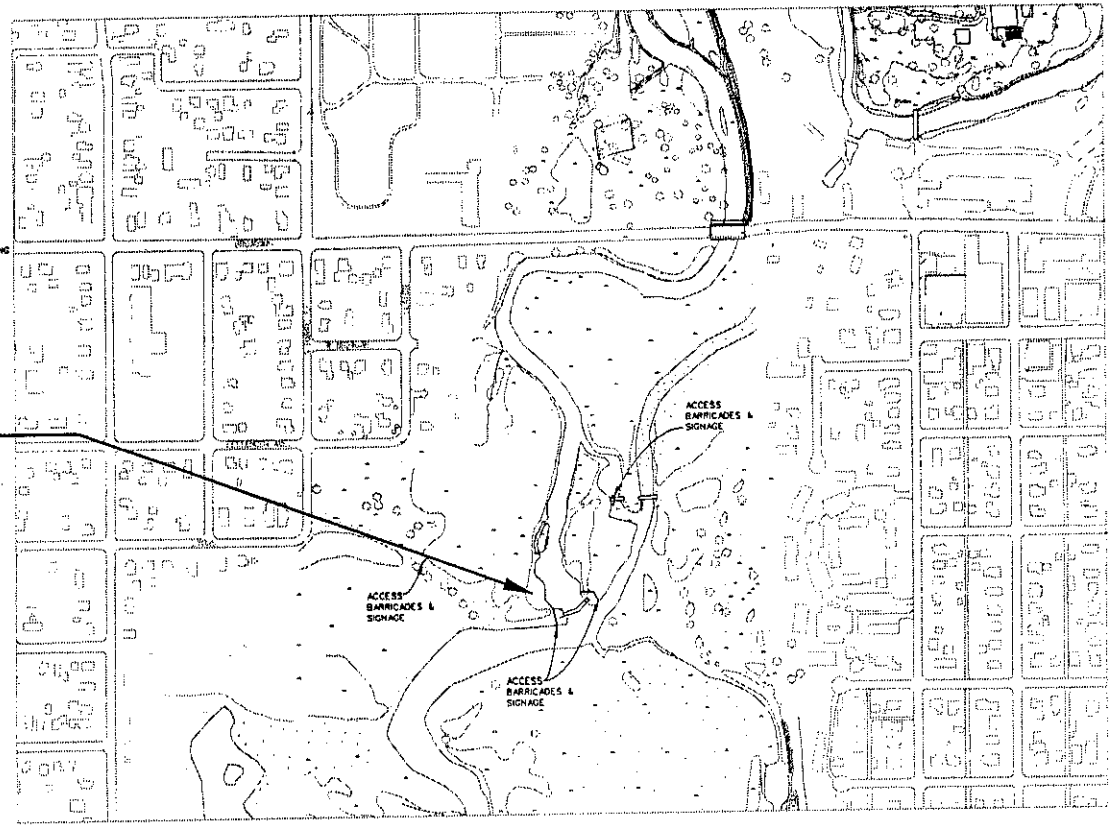
THE FOLLOWING UTILITIES MAY BE LOCATED WITHIN OR NEAR THE PROJECT.

CONSUMERS ENERGY — ELECTRIC
1325 WRIGHT STREET
ALMA, MICHIGAN 48801
PHONE: (517) 466-4265
EMERGENCY - (800) 487-5050

VERIZON — TELEPHONE
345 PINE STREET
ALMA, MICHIGAN 48801
PHONE: (517) 463-0224
EMERGENCY - (800) 483-1000

CHARTER COMMUNICATIONS — CABLE TELEVISION
915 E. BROOMFIELD
MT. PLEASANT, MI 48858
PHONE: (517) 772-0956

MICHIGAN CONSOLIDATED GAS CO. — GAS
609 BJORNSON ROAD
BIG RAPIDS, MI 49307
PHONE: (231) 592-3244
EMERGENCY: (800) 772-2600



VICINITY MAP
SCALE: 1" = 200'

GENERAL NOTES

1. FOR PROTECTION OF UNDERGROUND UTILITIES, CONTRACTOR SHALL CALL (800) 482-7171 A MINIMUM OF 3 WORKING DAYS PRIOR TO EXCAVATING IN THE VICINITY OF UTILITY LINES. ALL "MISS DIG" PARTICIPATING MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE PART OF THE "MISS DIG" ALERT SYSTEM. THE CONTRACTOR SHALL NOTE THAT ALL EXISTING UTILITIES AND STRUCTURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE. THIS IN NO WAY IMPLIES THAT THERE COULD NOT BE OTHER STRUCTURES OR UTILITIES LOCATED IN THE AREA.
2. AVOID UNNECESSARY DISTURBANCE OR REMOVAL OF EXISTING VEGETATED TOPSOIL OR EARTH COVER. THESE COVER AREAS ACT AS SEDIMENT FILTERS.
3. CONTRACTOR SHALL OBTAIN AND PAY FOR SOIL EROSION AND SEDIMENTATION CONTROL PERMITS (ACT 347) PRIOR TO CONSTRUCTION. EROSION CONTROL PRACTICES SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF MDEQ AND LOCAL AGENCIES HAVING JURISDICTION FOR SOIL EROSION & SEDIMENTATION CONTROL.
4. ANY REQUIRED FILL SHALL BE MDOT CLASS 4 GRANULAR MATERIAL FROM SITE OR BORROW AS REQUIRED. ALL FILL MATERIAL SHALL BE COMPACTED IN 8" MAXIMUM LIFTS TO 95% DENSITY UNLESS OTHERWISE NOTED.
5. CONTRACTOR SHALL PROVIDE CLASS 1 SEEDING MIXTURE AS PER THE SPECIFICATIONS - 200 #/ACRE, CHEMICAL FERTILIZER NUTRIENTS - 300 #/ACRE, MULCH - 2 TONS/ACRE AND TOPSOIL SURFACE - 3". CONTRACTOR SHALL SEED ALL DISTURBED SURFACES AS DIRECTED BY THE ENGINEER.
6. THE DESIGN OF THE CONCRETE STRUCTURES IS BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES:

CONCRETE:	f'c = 3000 psi
AIR ENTRAINMENT:	4.5% TO 6.5%
STEEL REINFORCEMENT:	Fy = 60,000 psi, EPOXY COATED

7. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING THE REINFORCING STEEL QUANTITIES AND LENGTHS AND SHALL SUBMIT SCHEDULE OF REINFORCING STEEL FOR APPROVAL PRIOR TO FABRICATION OF STEEL.
8. WHERE FIELD CUTTING OF STEEL IS REQUIRED, THE CONTRACTOR SHALL REPAIR THE COATING AT THE CUT END AS PROVIDED FOR IN MDOT STANDARD SPECIFICATION 706.03.E.8.
9. TOLERANCES IN CUTTING AND BENDING FOR REINFORCING STEEL ARE ESTABLISHED IN THE MANUAL OF STANDARD PRACTICE OF THE CONCRETE REINFORCING STEEL INSTITUTE AND DETAIL MANUAL OF THE AMERICAN CONCRETE INSTITUTE.
10. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO ENGINEER FOR CLARIFICATION. "NTS" MEANS DRAWING NOT TO SCALE.
11. ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS SHALL BE BEVELED WITH MIN. ½" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.
12. DETAILS OTHER THAN THOSE SHOWN ON THESE PLANS, MAY BE USED IF APPROVED BY ENGINEER IN WRITING.

CONTRACT FOR: SPILLWAY REMOVAL & CONSTRUCTION OF RIVER WEIRS AND PEDESTRIAN BRIDGE

CITY OF MT. PLEASANT, MI

APPROVED BY:

GREG BADERSCHNEIDER — DIR. OF PARKS, BLDGS & GROUNDS — DATE

PREPARED UNDER SUPERVISION OF

JAMES E. TIFFANY, P.E. — REGISTERED PROFESSIONAL ENGINEER
43942 — REGISTRATION NO.

WILCOX ASSOCIATES, INC.
ORGANIZATION

ONE MADISON AVENUE, CADILLAC, MICHIGAN 49601
ADDRESS

Wilcox Professional Services
ISO 9001 CERTIFIED

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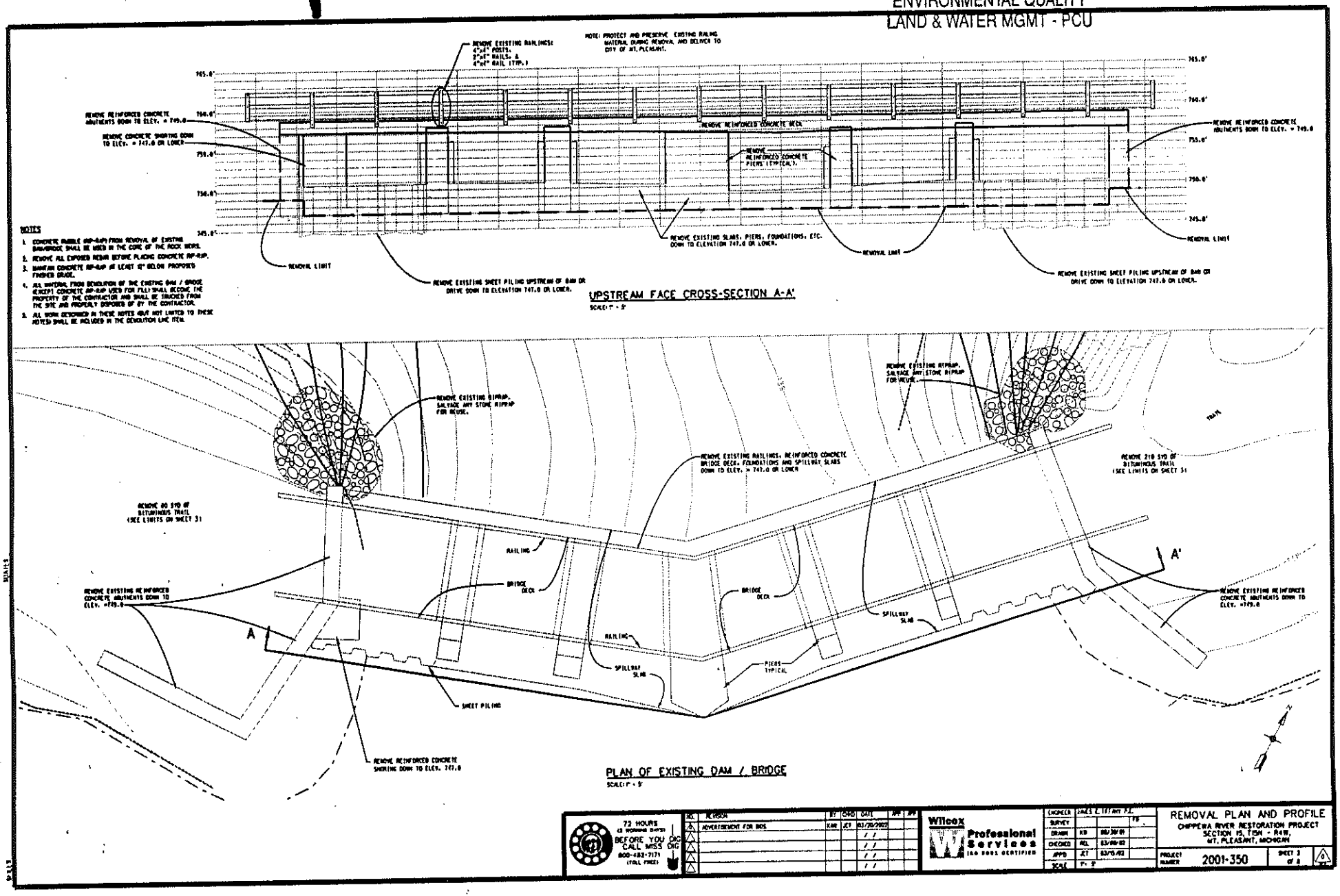

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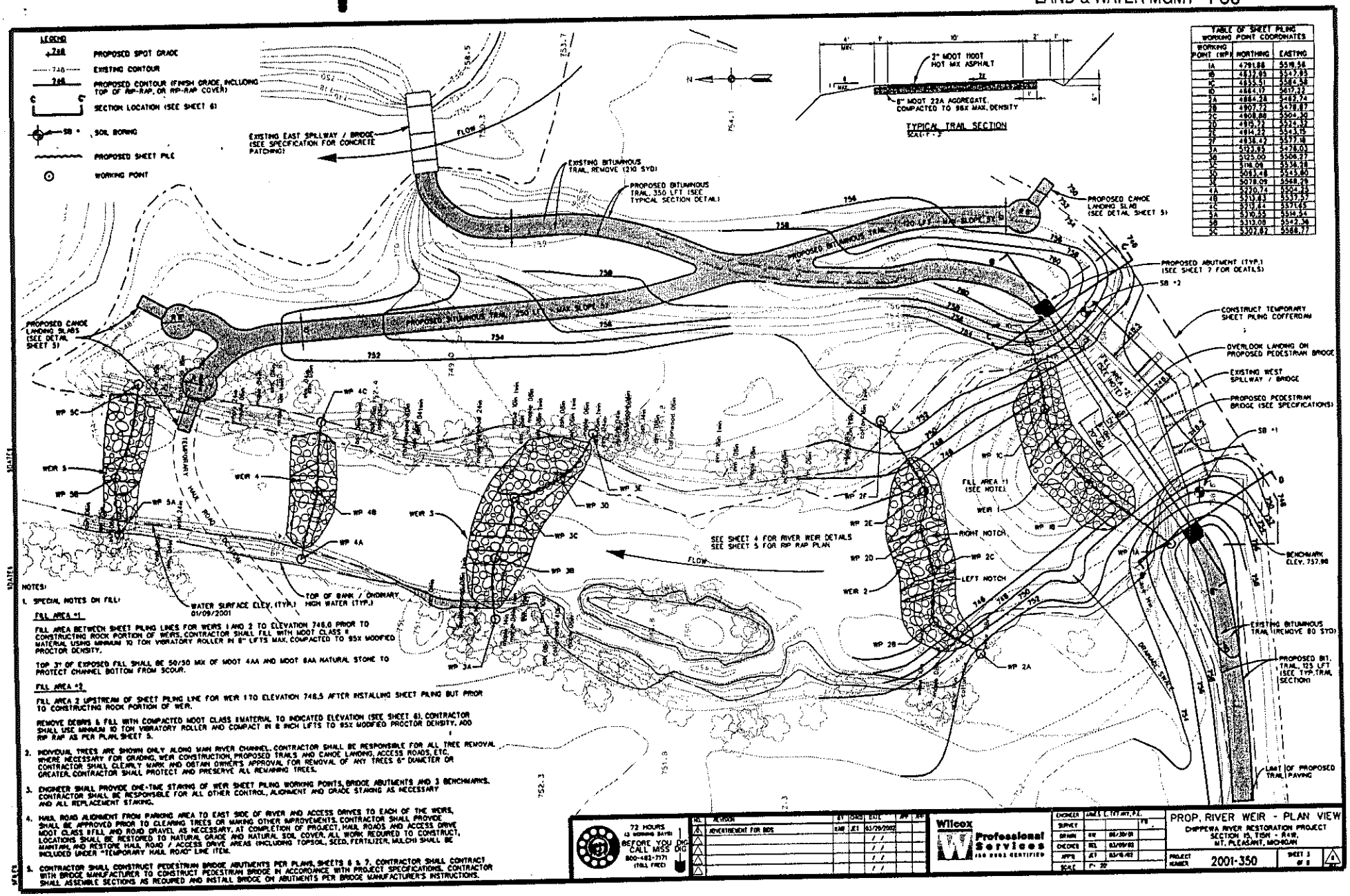
LAND & WATER MGMT - PCU



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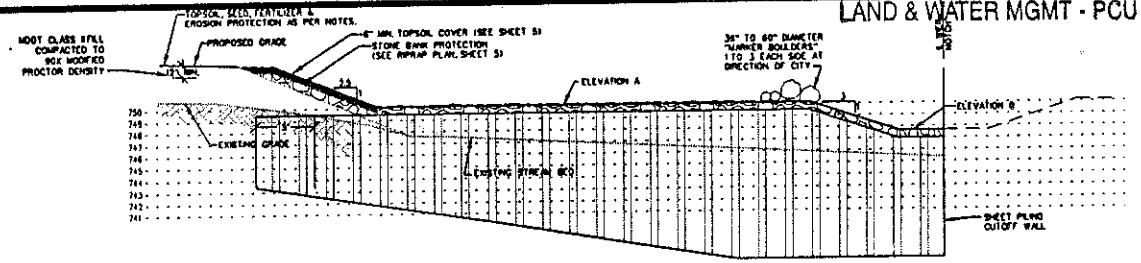
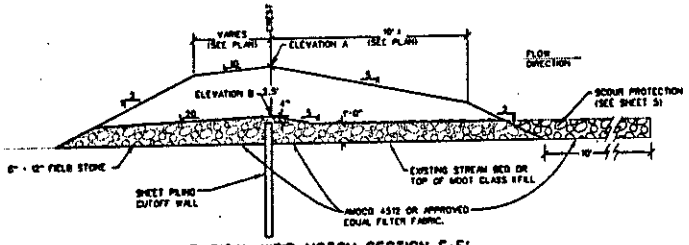
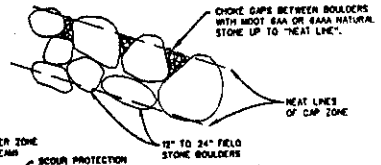


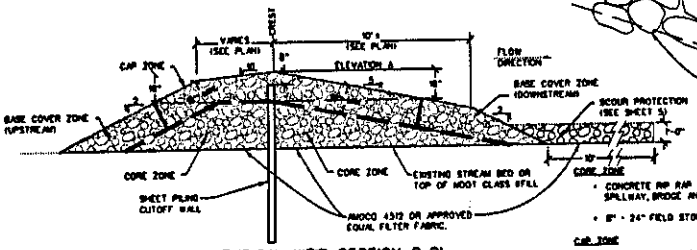
TYPICAL WEIR HALF SECTION E-E'



TYPICAL WEIR NOTCH SECTION F-F'



CAP ZONE DETAIL



TYPICAL WEIR SECTION G-G'

CORE ZONE
- CONCRETE RIP RAP AS AVAILABLE FROM REMOVAL OF CONCRETE SPILLWAY, BRIDGE AND ABUTMENTS.
- 8" - 24" FIELD STONE

CAP ZONE
- 12" - 24" UNBROKEN FIELD STONE BOULDERS WITH SPACES BETWEEN BOULDERS CHOKED WITH WOOT 6AA OR 6AAA NATURAL STONE (SEE DETAIL).

BASE COVER ZONES
- 8" - 24" FIELD STONE (D_{50} = 15") SEE SPECIFICATIONS FOR GRADATIONS

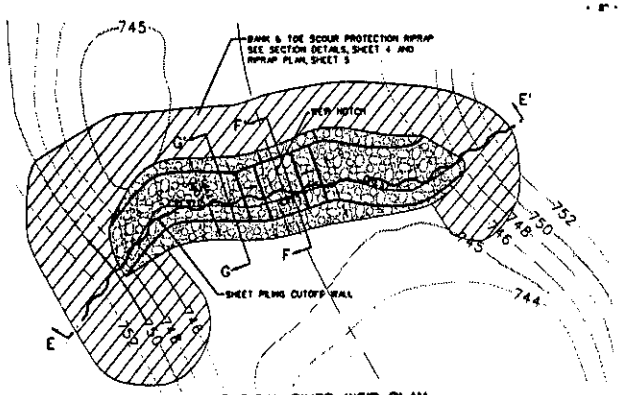
SHEET PILE NOTES:

1) PERMANENT STEEL (NON-GALVANIZED) SHEET PILING FOR WEIR CUTOFF WALLS SHALL CONSIST OF HOT-ROLLED STEEL MEETING ASTM A328. SHEET PILING SHALL BE NEW WITH THE FOLLOWING MINIMUM PROPERTIES:

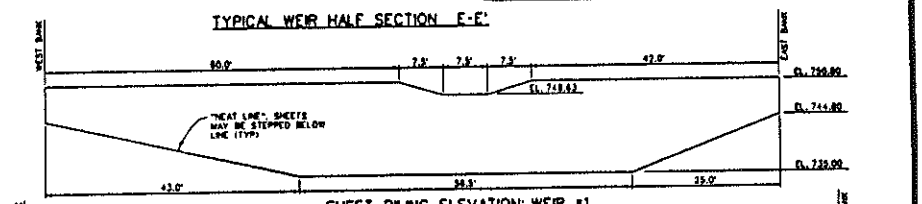
   WEB THICKNESS = 0.375 inch
   FLANGE THICKNESS = 0.375 inch
   MOMENT OF INERTIA = 84.4 in^4/ft OF WALL
   SECTION MODULUS = 18.1 in^3

2) CONTRACTOR SHALL SUBMIT TO ENGINEER SHOP DRAWINGS FOR PROPOSED SHEET PILING CUTOFF WALLS. SPECIAL SHEETS SHALL BE REQUIRED WHERE STANDARD INTERLOCKS DO NOT ALLOW DEFLECTIONS SHOWN ON THE PLANS. CONTRACTOR SHALL NOT BEGIN INSTALLATION OF SHEET PILINGS PRIOR TO ENGINEER'S APPROVAL OF SHOP DRAWINGS.

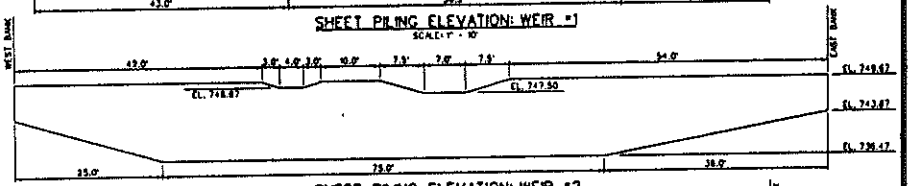
3) SOIL BORINGS SB-1 AND SB-2 INDICATE VERY HARD SILT TO SILTY CLAY WHICH COULD POSSIBLY BE WITHIN LIMITS OF THE PROPOSED SHEET PILING LENGTH. SHEETS SHALL BE INSTALLED TO A MINIMUM OF ELEVATIONS SHOWN OR ABSOLUTE REFUSAL OF THE SHEETS WHEN USING EXCAVATOR MOUNTED, SHEET PILING VIBRATOR EQUIPMENT. HOWEVER, IN NO CASE SHALL SHEETING BE INSTALLED TO LESS THAN 5 FEET BELOW EXISTING GRADE. CARE SHOULD BE TAKEN TO NOT DAMAGE SHEET PILING DURING INSTALLATION.



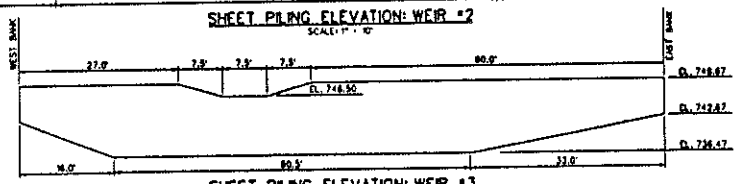
TYPICAL RIVER WEIR PLAN



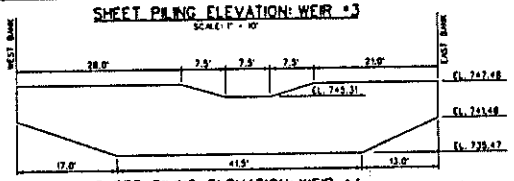
SHEET PILING ELEVATION: WEIR #1
SCALE: 1" = 10'



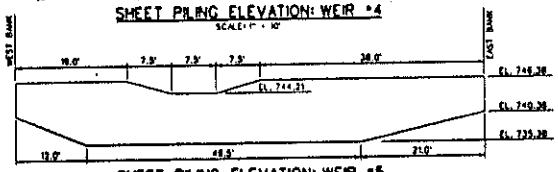
SHEET PILING ELEVATION: WEIR #2
SCALE: 1" = 10'



SHEET PILING ELEVATION: WEIR #3
SCALE: 1" = 10'



SHEET PILING ELEVATION: WEIR #4
SCALE: 1" = 10'



SHEET PILING ELEVATION: WEIR #5
SCALE: 1" = 10'

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG 800-482-7171 (TOLL FREE)

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0	ADVERTISEMENT FOR BIDS	KMR	JCT	03/20/2002		
1				/ /		
2				/ /		
3				/ /		
4				/ /		
5				/ /		

Wilcox Professional Services (an 9001 certified)

ENGINEER	JAMES C. TITTMAN, P.E.	
SURVEY		
DRAWN	KMR	03/30/01
CHECKED	RCL	03/06/02
APPD	JCT	03/15/02
SCALE	1" = NTS	

GENERAL WEIR PLAN & SECTION
CHIPPEWA RIVER RESTORATION PROJECT
SECTION 15, T15N - R4W,
MT. PLEASANT, MICHIGAN

PROJECT NUMBER 2001-350 | SHEET 4 OF 8 | A

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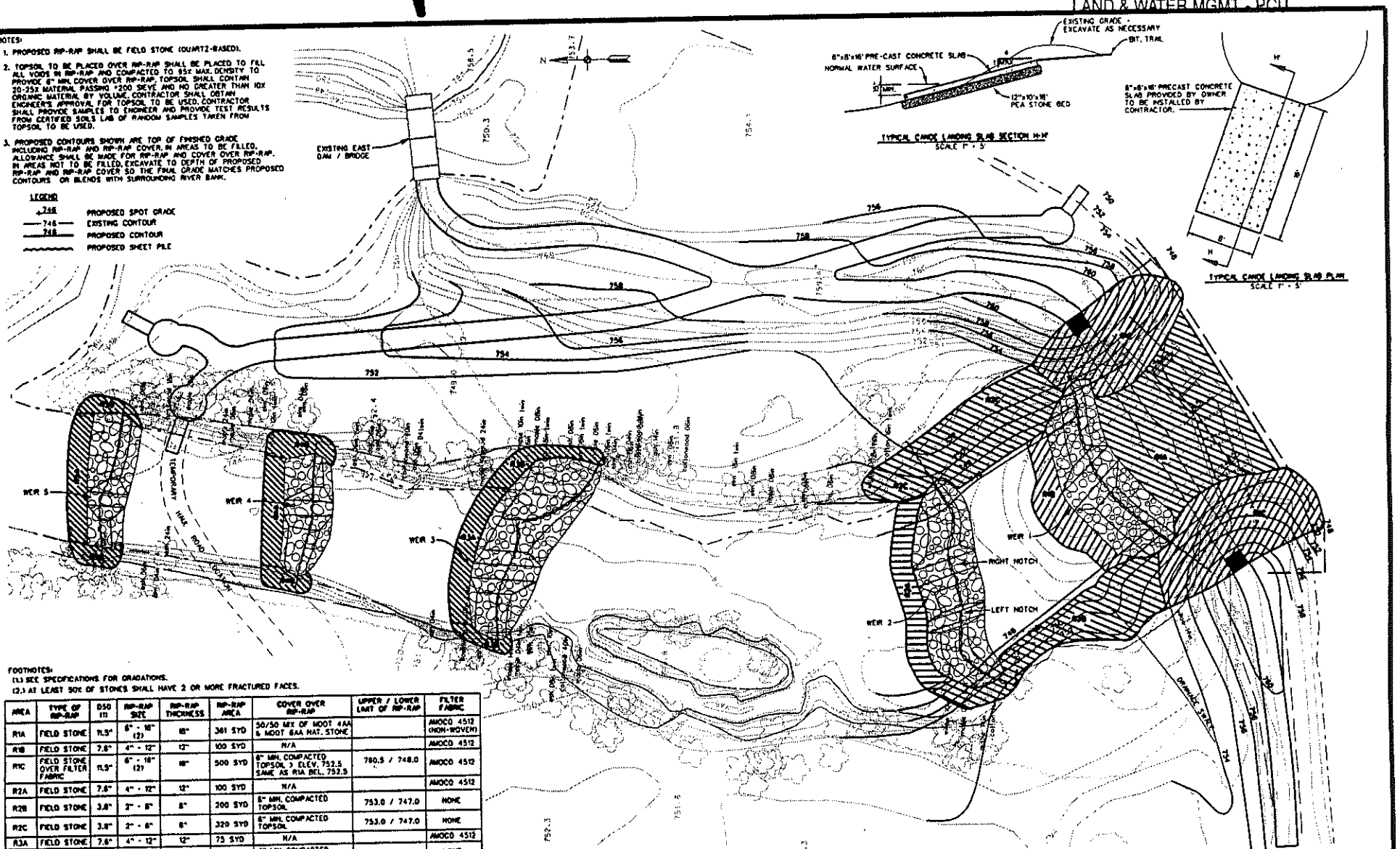
NOTES:

1. PROPOSED RIP-RAP SHALL BE FIELD STONE (QUARTZ-BASED).
2. TOPSOIL TO BE PLACED OVER RIP-RAP SHALL BE PLACED TO FILL ALL VOIDS IN RIP-RAP AND COMPACTED TO 95% MAX. DENSITY TO PROVIDE 6" MIN. COVER OVER RIP-RAP. TOPSOIL SHALL CONTAIN 20-25% MATERIAL PASSING #200 SIEVE AND NO GREATER THAN 10% ORGANIC MATERIAL BY VOLUME. CONTRACTOR SHALL OBTAIN ENGINEER'S APPROVAL FOR TOPSOIL TO BE USED. CONTRACTOR SHALL PROVIDE SAMPLES TO ENGINEER AND PROVIDE TEST RESULTS FROM CERTIFIED SOILS LAB OF RANDOM SAMPLES TAKEN FROM TOPSOIL TO BE USED.
3. PROPOSED CONTOURS SHOWN ARE TOP OF FINISHED GRADE INCLUDING RIP-RAP AND RIP-RAP COVER. IN AREAS TO BE FILLED, ALLOWANCE SHALL BE MADE FOR RIP-RAP AND COVER OVER RIP-RAP. IN AREAS NOT TO BE FILLED, EXCAVATE TO DEPTH OF PROPOSED RIP-RAP AND RIP-RAP COVER SO THE FINAL GRADE MATCHES PROPOSED CONTOURS OR BLENDS WITH SURROUNDING RIVER BANK.

LEGEND

- 748 — PROPOSED SPOT GRADE
- 746 — EXISTING CONTOUR
- 748 — PROPOSED CONTOUR
- PROPOSED SHEET PILE



FOOTNOTES:
(1.) SEE SPECIFICATIONS FOR GRADATIONS.
(2.) AT LEAST 50% OF STONES SHALL HAVE 2 OR MORE FRACTURED FACES.

AREA	TYPE OF RIP-RAP	D50 (1)	RIP-RAP SIZE	RIP-RAP THICKNESS	RIP-RAP AREA	COVER OVER RIP-RAP	UPPER / LOWER LIMIT OF RIP-RAP	FILTER FABRIC
R1A	FIELD STONE	11.3"	8" - 18" (2)	18"	361 SYD	50/50 MIX OF MDOT 4AA & MDOT 6AA NAT. STONE		AMOCO 4512 (NON-WOVEN)
R1B	FIELD STONE	7.8"	4" - 12"	12"	100 SYD	N/A		AMOCO 4512
R1C	FIELD STONE OVER FILTER FABRIC	11.3"	8" - 18" (2)	18"	500 SYD	6" MIN. COMPACTED TOPSOIL > ELEV. 752.5 SAME AS R1A BEL. 752.5	780.5 / 748.0	AMOCO 4512
R2A	FIELD STONE	7.8"	4" - 12"	12"	100 SYD	N/A		AMOCO 4512
R2B	FIELD STONE	3.8"	2" - 6"	8"	200 SYD	6" MIN. COMPACTED TOPSOIL	753.0 / 747.0	NONE
R2C	FIELD STONE	3.8"	2" - 6"	8"	320 SYD	6" MIN. COMPACTED TOPSOIL	753.0 / 747.0	NONE
R3A	FIELD STONE	7.8"	4" - 12"	12"	75 SYD	N/A		AMOCO 4512
R3B	FIELD STONE	3.8"	2" - 6"	8"	70 SYD	6" MIN. COMPACTED TOPSOIL	751.0 / -	NONE
R4A	FIELD STONE	7.8"	4" - 12"	12"	55 SYD	N/A		AMOCO 4512
R4B	FIELD STONE	3.8"	2" - 6"	8"	55 SYD	6" MIN. COMPACTED TOPSOIL	750.0 / -	NONE
R5A	FIELD STONE	7.8"	4" - 12"	12"	67 SYD	N/A		AMOCO 4512
R5B	FIELD STONE	3.8"	2" - 6"	8"	50 SYD	6" MIN. COMPACTED TOPSOIL	749.0 / -	NONE

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG 800-482-7171 (TOLL FREE)

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0.	ADVERTISEMENT FOR BIDS	JAS	JET	03/20/2002		
△				/ /		
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△				/ /		
△				/ /		

Wilcox Professional Services (ENGINEERS CERTIFIED)

ENGINEER	JAMES E. TETMAYER, P.E.	
SURVEY		P.E.
DRAWN	RTD	08/30/01
CHECKED	REL	03/08/02
APPD	JET	03/15/02
SCALE	1" = 20'	

PROP. RIP RAP PLAN
CHIPPEWA RIVER RESTORATION PROJECT
SECTION 15, T15N - R4W,
MT. PLEASANT, MICHIGAN

PROJECT NUMBER 2001-350 | SHEET 5 OF 8 | A

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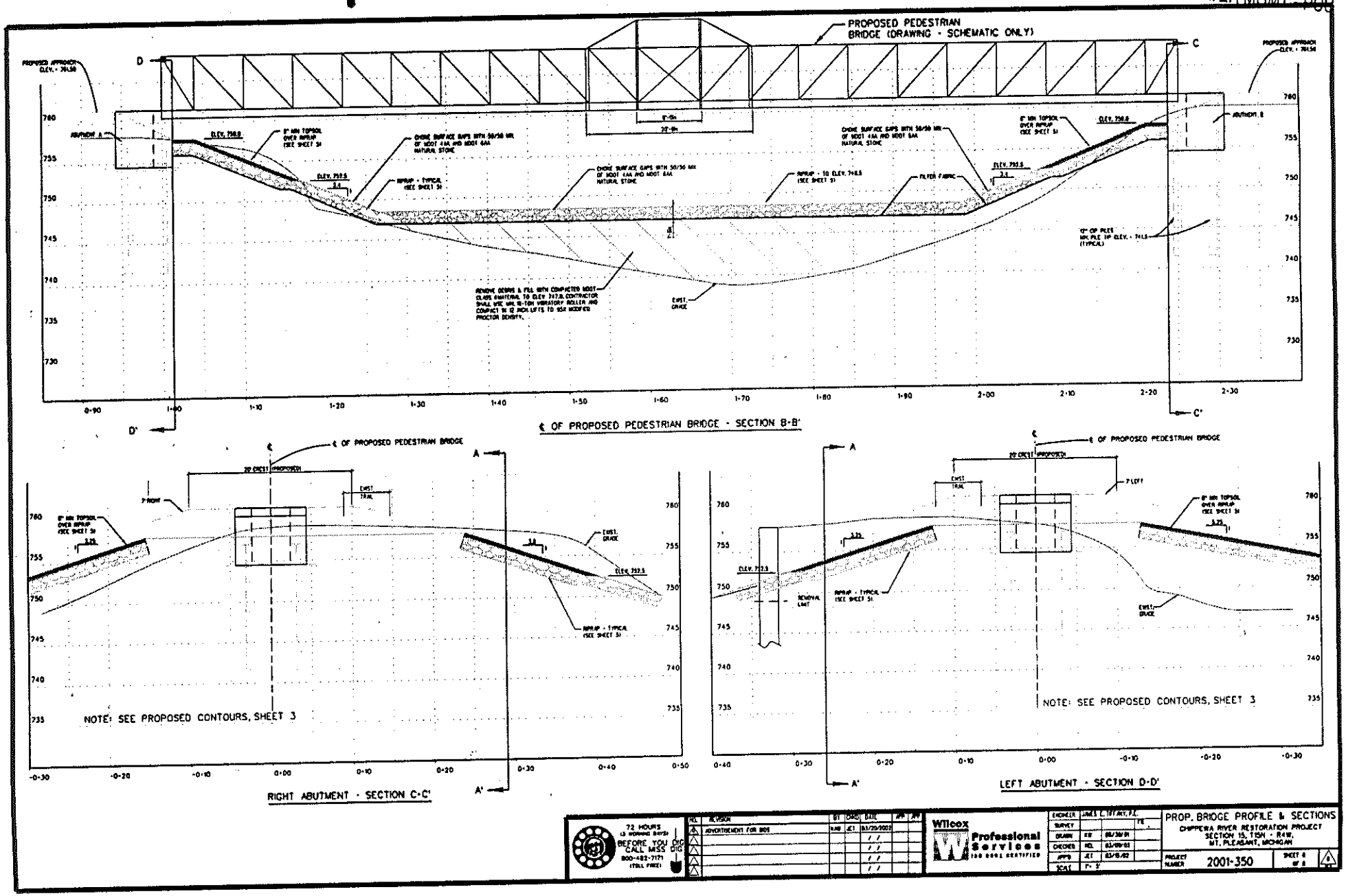

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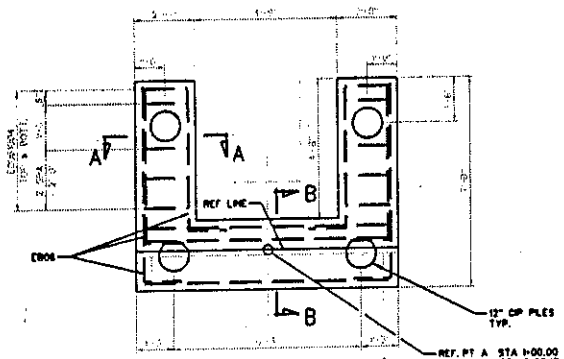
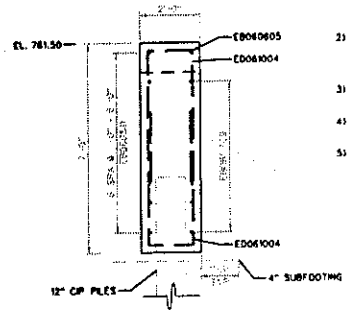


PLAN



SECTION A-A

NOTES:

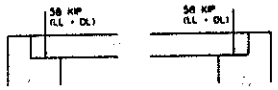
1) PRIOR TO START OF FOUNDATION CONSTRUCTION CONTRACTOR SHALL VERIFY THAT THE ENGINEER HAS REVIEWED THE BRIDGE SHOP DRAWINGS WITH REGARDS TO THE PRECISE LOCATION OF ABUTMENTS.

2) ALL MATERIALS AND WORKMANSHIP SHOWN HERE SHALL BE IN ACCORDANCE WITH MICHIGAN DEPARTMENT OF TRANSPORTATION 2003 INTERIM STANDARD SPECIFICATIONS FOR CONSTRUCTION.

3) ALL PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 17 TONS.

4) ESTIMATED PILE PENETRATIONS HAVE BEEN DETERMINED BY USE OF STATIC FORMULA.

5) PILE SHELLS SHALL BE A MINIMUM OF 0.230" NOMINAL WALL THICKNESS (3 GUAGE), 12" O.D.



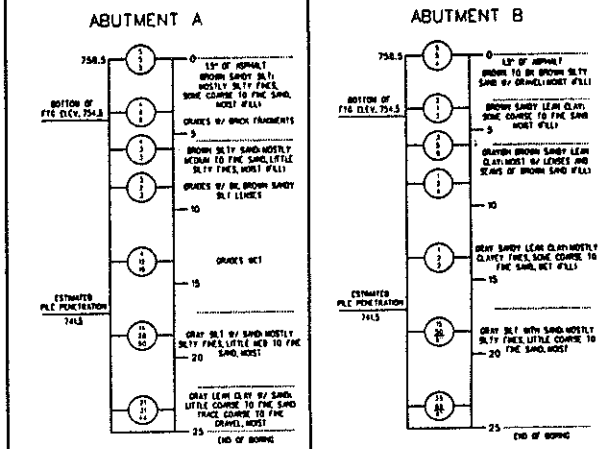
DESIGN LOADING DIAGRAM

SOIL BORING NO. 1

ELEV.	LOCATION	STATION
758.5	6 FEET LT.	STA 0+94

SOIL BORING NO. 2

ELEV.	LOCATION	STATION
758.5	6 FEET RT.	STA 2+24



SOIL BORINGS

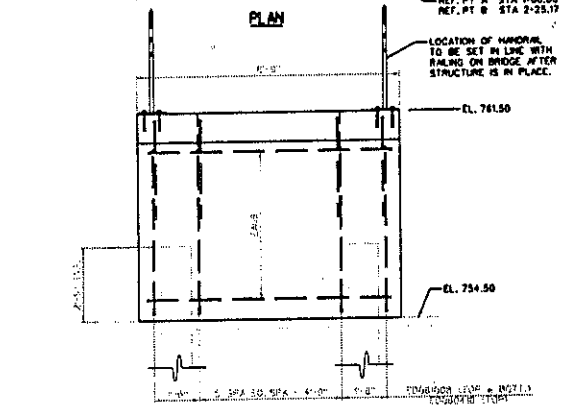
PERFORMED BY MATERIALS TESTING CONSULTANTS, INC. ON 3/28/01

1st 6 inches
2nd 6 inches
3rd 6 inches

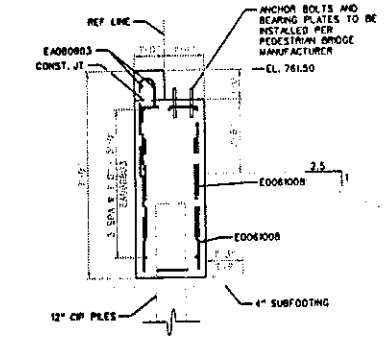
NUMBERS IN CIRCLES DENOTE NUMBER OF BLOWS REQUIRED TO DRIVE A 2" O.D. SPLIT SPOON SAMPLER 3 SUCCESSIVE 6" INCREMENTS USING A 140 LBS. HAMMER FALLING 30".

CONSISTENCY WAS DETERMINED BY INSPECTION OF SAMPLES AND SUBSTANTIATED BY SOILS RESISTANCE TO DRILLING TOOLS.

THE SOIL BORING LOGS REPRESENT POINT INFORMATION. PRESENTATION OF THIS INFORMATION IN NO WAY IMPLIES THAT SUBSURFACE CONDITIONS ARE THE SAME AT LOCATIONS OTHER THAN THE EXACT LOCATION OF THE BORING.

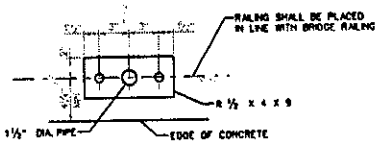


ELEVATION

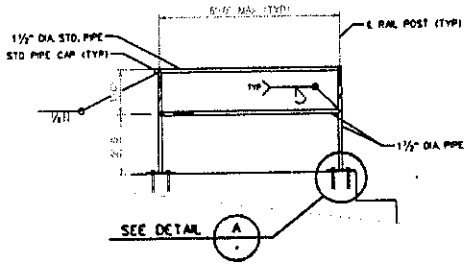


SECTION B-B

BAR	DIMENSIONS a	b	c	NO. REQ'D	TOTAL WT.
EB061008	4'-5"	1'-10"	4'-5"	32	512.7
EB061004	4'-5"	1'-6"	4'-5"	40	620.8
EA060803	8'-3"			30	371.7
EB060410	3'-4"	0'-8"	1'-0"	16	116.2
EB060519	4'-8"	1'-3"		28	248.6
EB060605	5'-2"	1'-3"		4	38.4
EB060709	6'-6"	1'-3"		24	279.4
			TOTAL		2188.2

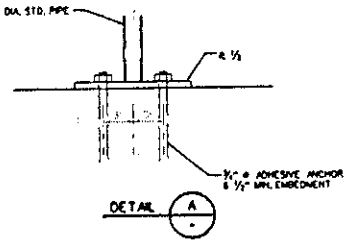


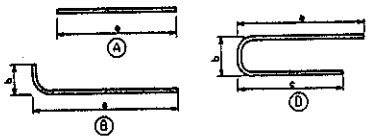
TYPICAL RAILING POST



TYPICAL ELEVATION FOR RAILING DETAIL
(2 REQUIRED)

NOTE:
ALL PIPE SHALL BE ASTM A53 GRADE B STD. WALL THICKNESS.
ALL RAILING STEEL SHALL BE PAINTED YELLOW





EPOXY COATED
BAR SIZE
BAR LENGTH (FT.)
BAR LENGTH (IN.)
EA064700
BAR SHAPE

BAR LEGEND

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3				/ /		
4				/ /		
5				/ /		

Wilcox Professional Services ISO 9001 CERTIFIED

CHECKED	RCL		
SURVEY			TB
DRAWN	CRS	08/31/01	
DESIGNED	RCL	03/28/01	
APP'D	JCT	03/15/02	
SCALE	1" =		

BRIDGE ABUTMENTS
CHIPPEWA RIVER RESTORATION PROJECT
SECTION 15, T13N - R4W,
MT. PLEASANT, MICHIGAN

PROJECT NUMBER 2001-350

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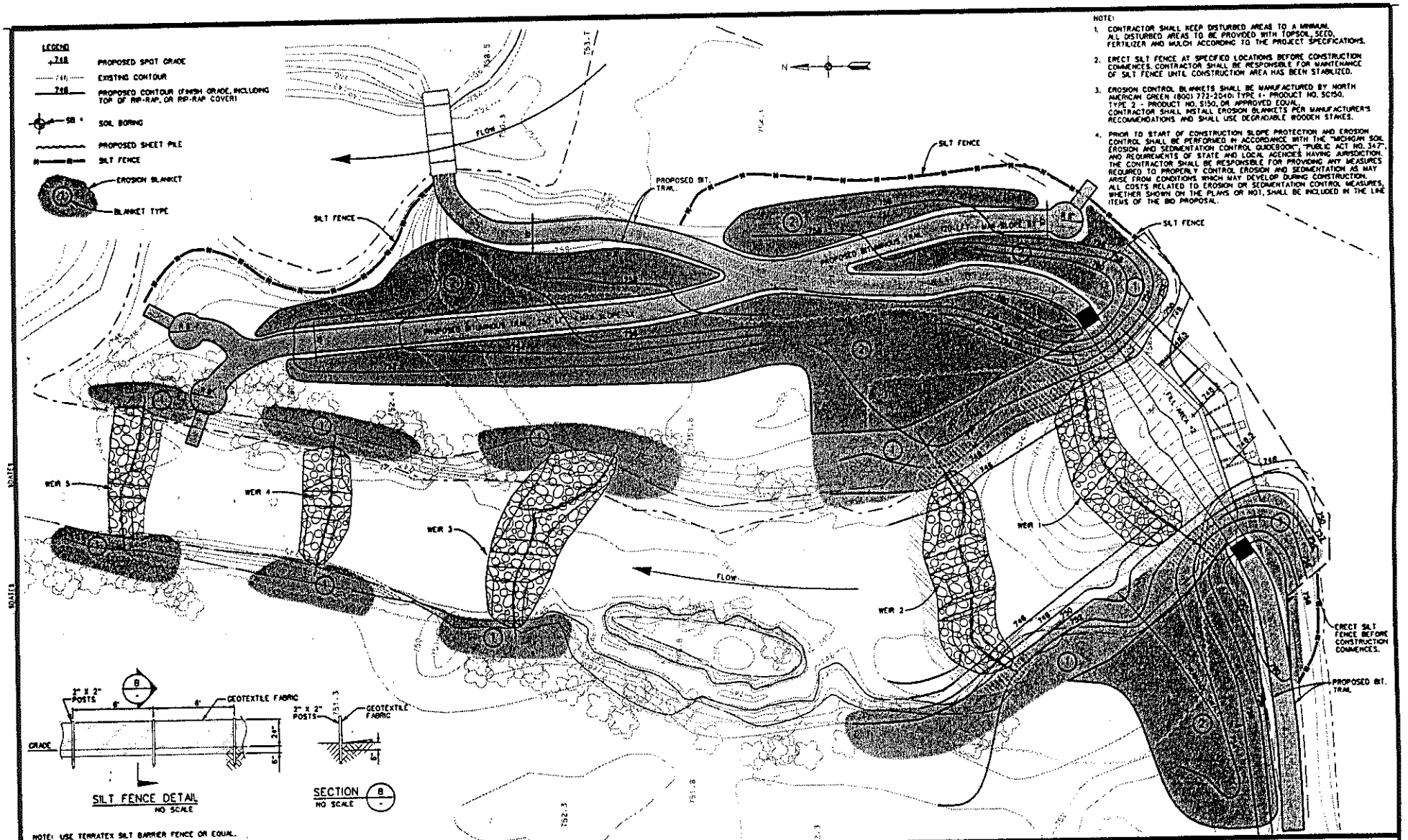
LEGEND
- +748 PROPOSED SPOT GRADE
- 748 EXISTING CONTOUR
- 748 PROPOSED CONTOUR (FINISH GRADE, INCLUDING TOP OF RIP-RAP, OR RIP-RAP COVER)
- SB 1 SOIL BORING
- PROPOSED SHEET PILE
- SILT FENCE
- EROSION BLANKET
- BLANKET TYPE

NOTE:
1. CONTRACTOR SHALL KEEP DISTURBED AREAS TO A MINIMUM. ALL DISTURBED AREAS TO BE PROVIDED WITH TOPSOIL, SEED, FERTILIZER AND MULCH ACCORDING TO THE PROJECT SPECIFICATIONS.
2. ERECT SILT FENCE AT SPECIFIED LOCATIONS BEFORE CONSTRUCTION COMMENCES. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF SILT FENCE UNTIL CONSTRUCTION AREA HAS BEEN STABILIZED.
3. EROSION CONTROL BLANKETS SHALL BE MANUFACTURED BY NORTH AMERICAN GREEN (800) 772-2040: TYPE 1 - PRODUCT NO. SC150. TYPE 2 - PRODUCT NO. S150, OR APPROVED EQUAL. CONTRACTOR SHALL INSTALL EROSION BLANKETS PER MANUFACTURER'S RECOMMENDATIONS AND SHALL USE DEGRADABLE WOODEN STAKES.
4. PRIOR TO START OF CONSTRUCTION SLOPE PROTECTION AND EROSION CONTROL SHALL BE PERFORMED IN ACCORDANCE WITH THE "MICHIGAN SOIL EROSION AND SEDIMENTATION CONTROL GUIDEBOOK", PUBLIC ACT NO. 347, AND REQUIREMENTS OF STATE AND LOCAL AGENCIES HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY MEASURES REQUIRED TO PROPERLY CONTROL EROSION AND SEDIMENTATION AS MAY ARISE FROM CONDITIONS WHICH MAY DEVELOP DURING CONSTRUCTION. ALL COSTS RELATED TO EROSION OR SEDIMENTATION CONTROL MEASURES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE INCLUDED IN THE LINE ITEMS OF THE BID PROPOSAL.



NOTE: USE TERRATEX SILT BARRIER FENCE OR EQUAL.

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG 800-482-7171 (TOLL FREE)

NO.	REVISION	BY	CHKD	DATE	APP	APP
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2				/ /		
3				/ /		
4				/ /		
5				/ /		

Wilcox Professional Services ISO 9001 CERTIFIED

ENGINEER	JAMES L. TITT JR., P.E.		
SURVEY			
DRAWN	KW	08/30/01	
CHECKED	RLL	03/08/02	
APP'D	JET	03/08/02	
SCALE	1" = 30'		

EROSION CONTROL PLAN
CHIPPEWA RIVER RESTORATION PROJECT
SECTION 15, T15N - R4W,
MT. PLEASANT, MICHIGAN

PROJECT NUMBER 2001-350

SHEET 8 OF 8