DETROIT LOWER EAST SIDE FLOOD MITIGATION PROJECT

CITY OF DETROIT WAYNE COUNTY, MICHIGAN

OWNER

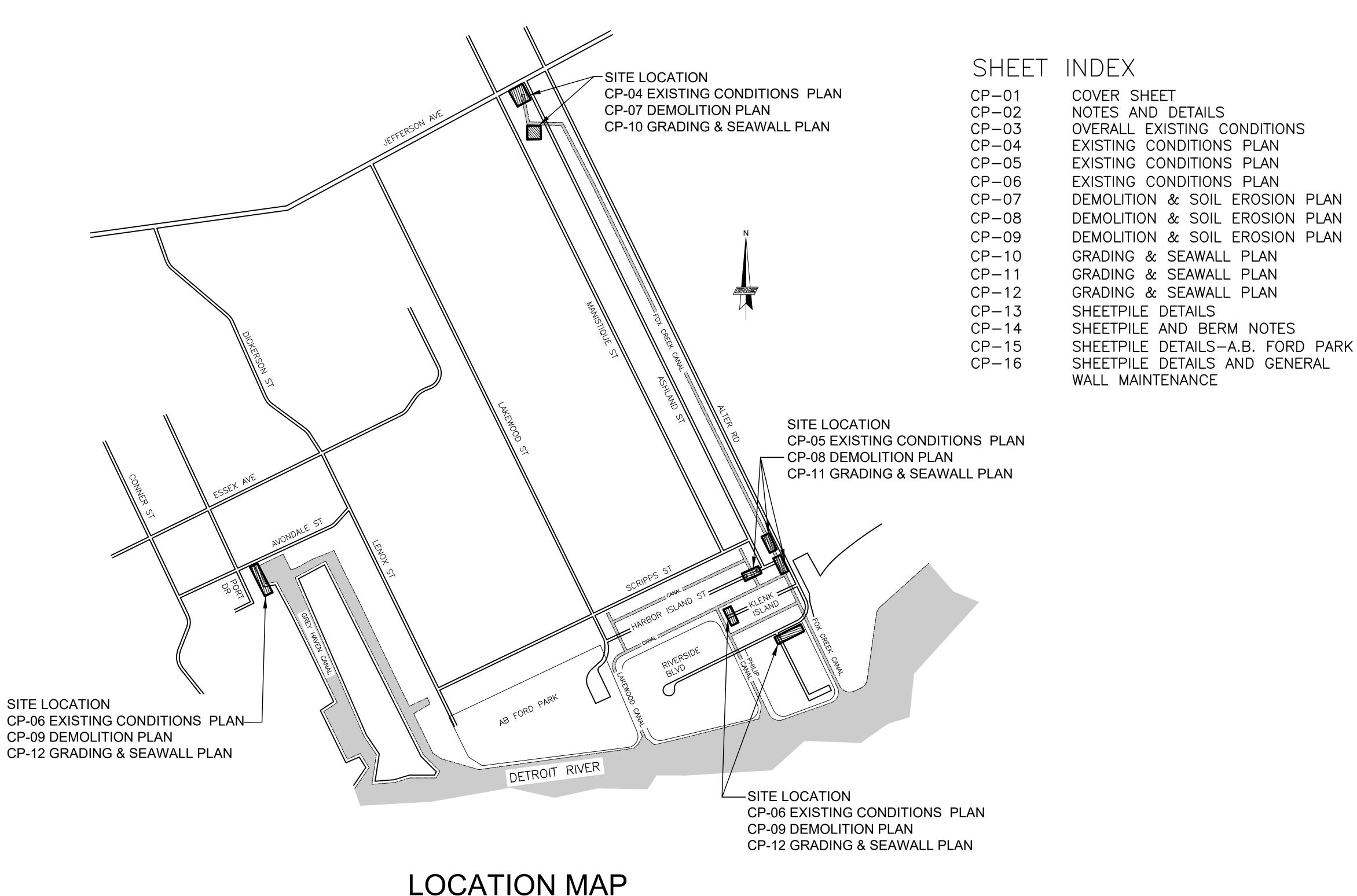
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NOT TO SCALE



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Section:	Section
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Professional Seal:



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DETROIT LOWER EAST SIDE FLOOD MITIGATION PROJECT

CITY OF DETROIT WAYNE COUNTY MICHIGAN

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IN SAID PERMITS.

2. UTILITY INFORMATION SHOWN ON THESE PLANS WAS OBTAINED FROM UTILITY OWNERS AND THEREFORE MAY NOT BE ACCURATE OR COMPLETE. THE CONTRACTOR SHALL VERIFY AND OBTAIN ANY INFORMATION NECESSARY REGARDING THE PRESENCE OF UNDERGROUND UTILITIES WHICH MIGHT HAVE AN IMPACT ON THIS PROJECT, AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES WHETHER THEY ARE SHOWN OR NOT ON THE PLANS.

3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES AT PROPOSED CONNECTIONS AND/OR CROSSINGS, AND TO NOTIFY THE ENGINEER OF ANY DISCREPANCIES TO THESE PLANS.

4. 72 HOURS PRIOR TO EXCAVATION, THE CONTRACTOR SHALL CONTACT MISS DIG AT (800) 482-7171 FOR THE LOCATION OF UNDERGROUND GAS AND CABLE FACILITIES, AND SHALL ALSO

NOTIFY REPRESENTATIVES OF OTHER UTILITIES LOCATED IN THE VICINITY OF THE WORK. 5. ALL PERMITS REQUIRED SHALL BE OBTAINED BY THE CONTRACTOR. ALL PERMIT FEES, BONDS, AND INSURANCE REQUIRED BY THE ISSUING AGENCIES SHALL BE PROVIDED BY THE

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL WORK AREAS TO ENSURE THE SAFETY OF ALL OCCUPANTS, VISITORS, PEDESTRIANS, WORKERS, ETC. THE CONTRACTOR SHALL REPAIR AND MAINTAIN ALL CONSTRUCTION FENCING AS NECESSARY

CONTRACTOR, AND MUST BE KEPT CURRENT. THE CONTRACTOR IS RESPONSIBLE FOR ALL OTHER FEES, INSPECTION COSTS, ETC., AND SHALL ADHERE TO ALL REQUIREMENTS SET FORTH

7. THE CONTRACTOR SHALL PROVIDE FOR CONTROLLED ACCESS TO THE SITE FOR USE BY THE VARIOUS WORK FORCES, EMERGENCY VEHICLES, OCCUPANTS, VISITORS, ETC. THROUGHOUT CONSTRUCTION. THIS ACCESS MUST PROVIDE FOR THE REMOVAL OF MUD FROM VEHICLES TIRES. ROADWAYS AND DRIVEWAYS SHALL BE MAINTAINED OPEN FOR EMERGENCY VEHICLES AT ALL TIMES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE RESIDENTS AND BUSINESSES WHOSE DRIVEWAYS ARE AFFECTED BY THEIR SCHEDULE 24 HOURS IN ADVANCE. CONTRACTOR SHALL SCHEDULE CONSTRUCTION AT NON-PEAK USE HOURS AND SHALL MINIMIZE DRIVEWAY CLOSURE BY EXPEDITING CONSTRUCTION. 8. THE CONTRACTOR SHALL PROVIDE NECESSARY SIGNS, BARRICADES, AND LIGHTS TO PROTECT THE TRAFFIC AND THE WORK AS DIRECTED BY THE PLANS OR BY THE AGENCY WITH

9. THE CONTRACTOR IS REQUIRED TO CONFINE CONSTRUCTION ACTIVITIES TO THE LIMITS OF THE SITE AS SHOWN ON THE CONSTRUCTION PLANS. ANY DAMAGE OR DISRUPTION TO ADJACENT SITES IS THE RESPONSIBILITY OF THE CONTRACTOR TO CORRECT IMMEDIATELY. NO OFF-SITE WORK SHALL BE PERFORMED OUTSIDE OF PUBLIC RIGHTS-OF-WAY OR DEDICATED EASEMENTS WITHOUT PRIOR WRITTEN APPROVAL OF THE PROPERTY OWNER.

10. GREAT CARE SHALL BE TAKEN TO AVOID DAMAGE TO VEGETATION OUTSIDE THE CLEARING AND GRUBBING LIMITS. NO DRIVING OR PARKING OF VEHICLES AND/OR STORAGE OF MATERIALS AND SUPPLIES SHALL BE PERMITTED OUTSIDE THE LIMITS OF CONSTRUCTION.

JURISDICTION. ALL TRAFFIC CONTROLS SHALL BE IN ACCORDANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD).

11. ALL ELEVATIONS ON THESE PLANS ARE ON THE NAVD 88 DATUM.

12. THE PROTECTION OF EXISTING TREES, AS REQUIRED, SHALL BE SOLELY THE CONTRACTOR'S RESPONSIBILITY.

13. ALL CONSTRUCTION SHALL HAVE INSPECTION PROVIDED BY THE CITY OF DETROIT. THE CONTRACTOR SHALL CONTACT THE CITY OF DETROIT 48 HOURS BEFORE THE START OF CONSTRUCTION.

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL, AND SHALL PROVIDE ALL NECESSARY MATERIAL AND EQUIPMENT TO KEEP DUST IN CHECK AT ALL TIMES. THE CONTRACTOR SHALL RESPOND IMMEDIATELY TO ANY AND ALL COMPLAINTS. DUST CONTROL SHALL BE INCIDENTAL TO THE PROJECT.

15. DURING CONSTRUCTION, THE CONTRACTOR MAY ENCOUNTER SPRINKLER HEADS, PIPING, LIGHTING AND BURIED ELECTRICAL CABLE, MAILBOXES, FENCES, SIGNS, ETC., THAT MAY OR MAY NOT BE INDICATED ON THESE PLANS. THE CONTRACTOR SHALL REPLACE AND/OR RESTORE ALL COMPONENTS OF SUCH SYSTEMS. ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, MINIMUM STANDARD REQUIREMENTS, OR AS SPECIFIED HEREIN; WHICHEVER IS MORE STRINGENT.

16. ROADWAY, DRIVEWAY, AND PARKING AREA FINAL RESTORATION SHALL BE PERFORMED WITH SURFACE AND BASE MATERIALS MATCHING EITHER THE EXISTING MATERIALS IN QUALITY AND THICKNESS, PER MINIMUM REQUIREMENTS, OR PER THE FOLLOWING; WHICHEVER IS MORE STRINGENT:

A. ASPHALT ROADWAYS - 4" ASPHALT MDOT 1100T-20 AA

B. ASPHALT DRIVEWAYS - 3" ASPHALT MDOT 1100T-36 A

C. GRAVEL ROAD AND DRIVEWAYS - 8" MDOT 22A GRAVEL

D. CONCRETE ROADS - 8" 3500 PSI CONCRETE

E. CONCRETE DRIVEWAYS - 6" 3500 PSI CONCRETE

17. ALL LOT MARKERS AND MONUMENT POINTS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY A REGISTERED LAND SURVEYOR AT THE EXPENSE OF THE CONTRACTOR. 18. FINAL CLEANUP AND RESTORATION SHALL CONSIST OF FINE GRADING OF CONSTRUCTION AREAS, REMOVAL OF CONSTRUCTION SIGNS, ETC. TOPSOIL SHALL BE SPREAD OVER ALL DISTURBED AREAS, FOLLOWED BY SEED, FERTILIZER AND EROSION MAT OR STRAW MULCH, OR AS FURTHER REQUIRED BY THE LANDSCAPING PLANS AND SPECIFICATIONS. ALL REQUIRED RESTORATION ITEMS NOT SPECIFICALLY IDENTIFIED AS A PAY ITEM SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

19. THE UTILITY POLES SHOWN ON THESE DRAWINGS ARE INTENDED TO SHOW ONLY THE LOCATION OF EXISTING POLES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE QUANTITY AND DIRECTION OF OVERHEAD LINES. THE COST FOR SUPPORTING AND RELOCATING POLES SHALL BE INCIDENTAL TO THE PROJECT.

20. THE MEANS AND METHODS OF CONTROLLING GROUNDWATER AND DEWATERING ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. ALL COST ASSOCIATED WITH DEWATERING SHALL BE INCIDENTAL TO THE CONTRACT.

1. REFER TO THE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS AND RESPONSIBILITIES.

WITH THE EXCEPTION OF AN AMOUNT OF EXCAVATED MATERIALS SUFFICIENT FOR BACKEILLING AND CONSTRUCTION OF FILLS AS CALLED FOR ON THE PLANS AND AS

INDICATED BELOW, ALL BROKEN CONCRETE, STONE AND EXCESS EXCAVATED MATERIALS SHALL BE DISPOSED OF BY THE CONTRACTOR. THE CONTRACTOR WILL BE REQUIRED TO OBTAIN THEIR OWN DISPOSAL GROUND, AND WILL RECEIVE NO ADDITIONAL COMPENSATION FOR DISPOSING OF ANY OF THE EXCESS MATERIALS. MATERIALS

ACCEPTABLE TO THE ENGINEER MAY BE DISPOSED OF ON-SITE AT THE CONTRACTORS EXPENSE IN A MANNER APPROVED IN ADVANCE BY THE ENGINEER 3. THE EDGE OF EXISTING PAVEMENT SHALL BE CLEANED OF EARTH AND OTHER FOREIGN MATERIAL BEFORE ADJACENT POURS ARE PLACED

4. ALL BULKHEADING AND/OR SEWER PIPE REMOVAL NECESSITATED BY THE REMOVAL OF DRAINAGE STRUCTURES SHALL BE INCLUDED IN THE STRUCTURE REMOVAL.

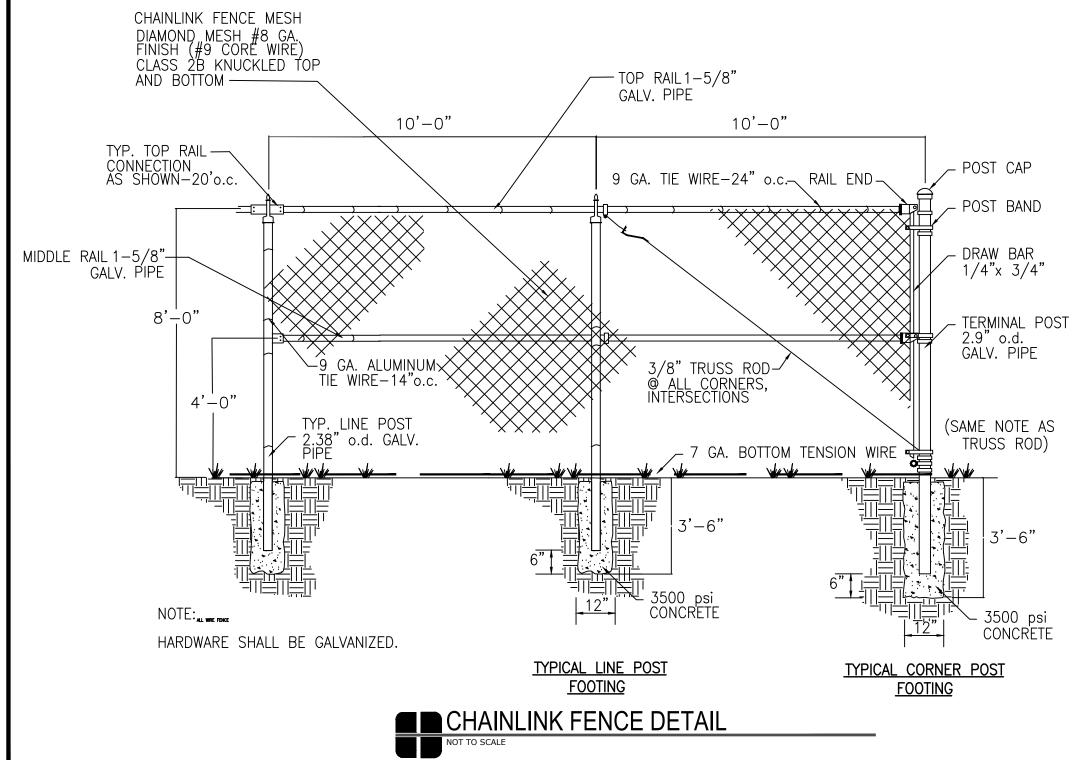
5. STREET SIGNS IN THE WAY OF CONSTRUCTION WILL BE REMOVED AND RESET IMMEDIATELY IN A TEMPORARY LOCATION, AS APPROVED BY ENGINEER

THE CONTRACTOR SHALL PROTECT ALL EXISTING SIGNS AND POSTS SCHEDULED TO REMAIN, AS DIRECTED BY THE ENGINEER

7. ALL UNDERGROUND UTILITIES NOT INDICATED FOR REMOVAL SHALL BE PROTECTED THROUGHOUT CONSTRUCTION 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PRIVATE PROPERTY (INCLUDING BUILDINGS AND FOUNDATIONS) THROUGHOUT CONSTRUCTION AND

SHALL MAINTAIN SAFE PEDESTRIAN ACCESS AT ALL TIMES

9. THE REMOVAL OF PAVEMENT, CURBS AND WALKS SHALL INCLUDE ALL REQUIRED SAWCUTTING. CURB REMOVAL IS INCIDENTAL TO PAVEMENT REMOVAL



UTILITY NOTES

1. REFER TO THE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS AND RESPONSIBILITIES.

2. REFER TO ARCHITECTURAL PLANS TO COORDINATE ALL:

A. WATER SUPPLY, METERING, SPRINKLER AND FDC PIPING, DESIGN AND COORDINATION

B. BUILDING SEWER, BUILDING DRAIN DESIGN AND CONNECTIONS TO CLEAN OUTS AND ROOF CONNECTORS C. GAS. ELECTRIC AND COMMUNICATION SERVICES, AND LIGHTING DETAILS

D. ALL BUILDING ACCESS WALKS AND ENTRY DETAILS, INCLUDING SUPPORTED SLABS

E. ALL WORK TO CONSTRUCT THE BUILDING AND ALL ITEMS CONNECTED TO IT

3. ALL TRENCHES WITHIN A ONE ON ONE SLOPE OF PAVEMENT SHALL BE BACKFILLED WITH SAND (MDOT CLASS II MINIMUM) AND MECHANICALLY COMPACTED IN NOT MORE THAN 9" LAYER TO 95% MAXIMUM DRY DENSITY PER MODIFIED PROCTER COMPACTION TEST ASTM D-1557. COMPACTED SAND BACKFILL SHALL ALSO BE PROVIDED FOR ALL SEWER TRENCHES LOCATED UNDER, OR WITHIN, THREE FEET OF PAVEMENT.

4. THE COST OF ALL TREE, STUMP, FOUNDATION AND/OR STRUCTURE REMOVAL AND DISPOSAL NOT INCLUDED IN THE PROPOSAL SHALL BE CONSIDERED INCIDENTAL AND INCLUDED IN THE PRICE BID FOR WATERMAIN, SANITARY SEWER, STORM SEWER, AND PAVING WORK.

5. A MINIMUM VERTICAL CLEARANCE OF 18 INCHES IS REQUIRED AT UTILITY CROSSINGS (MEASURED FROM THE OUTSIDE OF PIPE TO THE OUTSIDE OF PIPE). POSITIVE PROVISIONS SHALL BE MADE TO ENSURE THAT ALL LITILITY TRENCHES ARE FREE DRAINING DURING ALL PHASES OF CONSTRUCTION

6. THE REQUIRED BEDDING FOR SEWER PIPE SHALL CONSIST OF A MAXIMUM 3/4 INCH DIAMETER CRUSHED STONE.

7. THE MINIMUM SLOPE FOR A BUILDING LEAD IS 1%. LEADS SHALL ONLY BE CONNECTED TO THE MAIN LINE WITH WYES.

8. ALL STORM SEWER PIPE SHALL BE CONSTRUCTED WITH RUBBER GASKET (PREMIUM) JOINTS.

9. THE CONTRACTOR SHALL COORDINATE THE REMOVAL OF ALL UTILITY LINES AND STRUCTURES, AS OUTLINED ON THE DEMOLITION PLAN, WITH THE INSTALLATION OF UTILITY IMPROVEMENTS.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING GRADE MODIFICATIONS INDICATED ON THE FINISHED LANDSCAPE PLAN, AND COORDINATE THE ACTUAL FINISH GRADE OF FIRE HYDRANTS, GATE VALVE CASTINGS, MANHOLES, YARD DRAINS, CLEAN OUTS AND OTHER UTILITY STRUCTURES. ENSURE THAT ALL FINISH GRADING IS PERFORMED IN A MANNER THAT ACCOMPLISHES THE PROJECT DESIGN OBJECTIVES AND PROVIDES FOR POSITIVE DRAINAGE OF ALL AREAS. ANY SUBSTANTIAL GRADE CHANGES WHICH MAY CAUSE FUNCTIONAL PROBLEMS SHALL BE REPORTED PROMPTLY TO THE ENGINEER WHO SHALL EVALUATE THE CONDITIONS AND PROVIDED CORRECTIONAL RECOMMENDATIONS TO THE OWNER FOR FINAL DETERMINATION.

11. CONTRACTOR SHALL BE REQUIRED TO COORDINATE THE INSTALLATION OF GAS, ELECTRIC, PHONE, CABLE, SPRINKLERS ETC., IN SUCH A MANNER THAT WILL FACILITATE THEIR PROPER INSTALLATION PRIOR TO

PLACING THE PAVEMENT MATERIALS. ENSURE THAT ALL REQUIRED PIPES, CONDUITS, CABLES AND SLEEVES ARE PROPERLY PLACED AND THAT THE TRENCHES ARE PROPERLY BACKFILLED AND COMPACTED. 12. THE CONTRACTOR SHALL REMOVE UTILITIES, WHICH HAVE BEEN ABANDONED IN PLACE, AS REQUIRED TO COMPLETE INSTALLATION OF NEW UTILITIES. WHENEVER ABANDONED UTILITIES ARE CUT, CONTRACTOR

SHALL COMPLETELY CAP BOTH ENDS TO PREVENT THE INFILTRATION OF SOILS.

13. NO CONNECTION MAY BE MADE TO ANY EXISTING WATER MAIN UNTIL THE NEW MAIN HAS PASSED ALL PRESSURE AND BACTERIOLOGICAL TESTING.

14. ROADWAY, DRIVEWAY AND PARKING AREA CROSSINGS SHALL BE TEMPORARILY CONDITIONED IMMEDIATELY AFTER CROSSING BY PLACING 8" OF MDOT 22A GRAVEL OR SLAG AGGREGATE, AND SHALL BE MAINTAINED

IN GOOD, DUST FREE CONDITION UNTIL PAVEMENT RESTORATION IS MADE PAVING AND GRADING NOTES

1. REFER TO THE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS AND RESPONSIBILITIES.

2. THE PAVING CONTRACTOR SHALL BE REQUIRED TO COORDINATE THE INSTALLATION OF GAS, ELECTRIC, PHONE, CABLE, SPRINKLERS, ETC. IN SUCH A MANNER THAT WILL FACILITATE THEIR PROPER INSTALLATION PRIOR TO

PLACING THE PAVEMENT MATERIALS. ENSURE THAT ALL REQUIRED PIPES, CONDUITS, CABLES AND SLEEVES ARE PROPERLY PLACED AND THAT THE TRENCHES ARE PROPERLY BACKFILLED AND COMPACTED. 3. BUTT JOINTS SHALL BE PLACED AT ALL LOCATIONS WHERE AN EXISTING ASPHALT PAVEMENT SURFACE IS BEING DISTURBED BY REMOVALS AND/OR THE INSTALLATION OF NEW ASPHALT PAVEMENT.

4. ALL PAVEMENT AREAS SHOULD BE CLEARED AND GRUBBED BY REMOVING SURFACE VEGETATION, TOPSOIL, DEBRIS AND OTHER DELETERIOUS MATERIALS.

5. THE PLACEMENT OF THE FINAL ASPHALT LIFT SHALL BE DELAYED UNTIL THE MAJORITY OF THE CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED, OR AS APPROVED BY THE OWNER. A BOND COAT OF SS-1H EMULSION

SHALL BE APPLIED (AT A RATE OF 0.10 GALLONS/S.Y.D.) BETWEEN THE LEVELING AND WEARING COURSE WHEN 48 HOURS HAVE ELAPSED BETWEEN PLACEMENTS. 6. THE FINAL SUB-GRADE SHALL BE THOROUGHLY PROOF-ROLLED UNDER THE OBSERVATION OF THE SOILS ENGINEER.

7. PROPOSED AGGREGATE BASE SHALL EXTEND A MINIMUM OF 1 FOOT BEYOND THE PAVEMENT EDGE/BACK OF CURB.

8. ALL TRENCHES WITHIN A ONE ON ONE SLOPE OF PAVEMENT SHALL BE BACKFILLED WITH SAND (MDOT CLASS II MINIMUM) AND MECHANICALLY COMPACTED IN NOT MORE THAN 9" LAYER TO 95% MAXIMUM DRY DENSITY PER

MODIFIED PROCTER COMPACTION TEST ASTM D-1557.

9. NO FROZEN MATERIAL SHALL BE PERMITTED AS BACKFILL UNDER ANY ROADWAY, DRIVEWAY OR PARKING AREA.

10. PRIOR TO THE START OF ANY FILLING, THE CONTRACTOR SHALL REMOVE ALL TOPSOIL AND ALL OTHER UNACCEPTABLE SOIL FROM THE FILL AREAS, AND PROPERLY BACKFILL WITH ACCEPTABLE SOIL. 11. BARRIER FREE SIGNAGE SHALL BE PLACED IN FRONT OF EVERY DESIGNATED BARRIER FREE STALL. THE CONTRACTOR SHALL COORDINATE STANDARD AND VAN ACCESSIBILITY SIGNAGE AS INDICATED ON THE PLANS.

12. ALL BARRIER FREE RAMPS TO BE A.D.A. COMPLIANT.

13. GENERAL GRADING REQUIREMENTS ARE AS FOLLOWS: A. FINISH GRADE AT EXISTING BUILDING SHALL MATCH BRICK LEDGES, DOORWAYS OR BASEMENT WINDOWS

B. MAINTAIN POSITIVE DRAINAGE AWAY FROM ALL BUILDING (± 2%)

C. SIDEWALK CROSS SLOPE ±2% UNLESS OTHERWISE NOTED (EXCLUDING RAMPS)

D. PAVEMENT SLOPES (1.0% MINIMUM, 4.0% MAXIMUM) UNIFORMLY BETWEEN FINISH GRADE ON PLANS

E. LAWN AREAS ± 1% MINIMUM TO 25% (BERMS) MAXIMUM 14. ALL PROPOSED GRADES ARE AT THE GUTTER UNLESS OTHERWISE NOTED. SEE DETAILS FOR FACE OF CURB, TOP OF CURB AND ASPHALT ADJUSTMENTS.

15. REFER TO ARCHITECTURAL PLANS TO COORDINATE ALL:

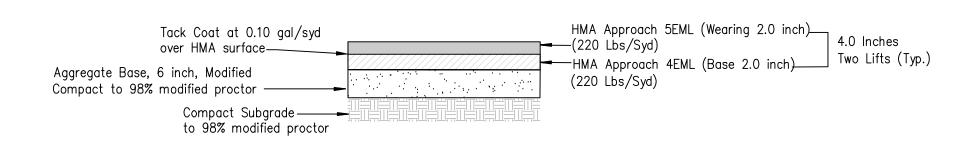
A. WATER SUPPLY, METERING, SPRINKLER AND FDC PIPING, DESIGN AND COORDINATION

B. BUILDING SEWER, BUILDING DRAIN DESIGN AND CONNECTIONS TO CLEAN OUTS AND ROOF CONNECTORS C. GAS, ELECTRIC AND COMMUNICATION SERVICES AND LIGHTING DETAILS AND COORDINATION.

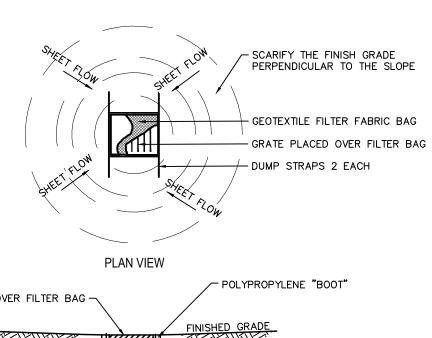
D. ALL BUILDING ACCESS WALKS AND ENTRY DETAILS, INCLUDING SUPPORTED SLABS

E. ALL WORK TO CONSTRUCT THE BUILDING AND ALL ITEMS CONNECTED TO IT 16. PRIOR TO THE PLACEMENT OF ANY BASE ASPHALT OR LEVELING COURSE, THE CURBS SHALL BE PARTIALLY BACKFILLED AND THE SUB-GRADE SHALL BE PROOF-ROLLED UNDER THE SUPERVISION OF THE SOILS ENGINEER.

17. ALL SIDEWALK AND PATHWAYS IN ANY PUBLIC R.O.W. SHALL BE INSPECTED BY THE AGENCY WITH JURISDICTION.



HMA PAVEMENT SECTION



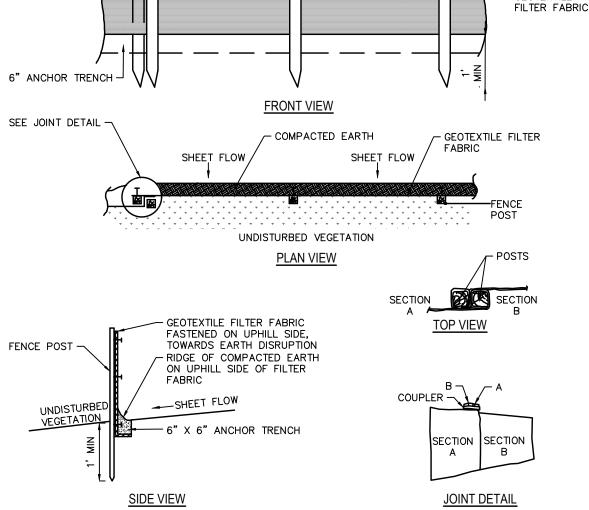
GRATE PLACED OVER FILTER BAG - OVERFLOW - POLYPROPYLENE FILTER BAG SECTION VIEW

1. INSTALL TEMPORARY SEDIMENT INLET FILTER TO BE INSTALLED ON ALL PAVED CATCH BASINS OR STORM INLETS, OR AS SPECIFIED ON THE SOIL EROSION

2. INLET FILTER TO BE SIMILAR TO "STEAMGUARD" AS MANUFACTURED BY STORMWATER SERVICES CORPORATION OR "SILTSACK" AS MANUFACTURED BY ATLANTIC CONSTRUCTION FABRICS, INC.. CLEAN FILTER AS NEEDED, OR AS REQUIRED BY THE SOIL EROSION AND SEDIMENT CONTROL PLAN.

SEDIMENT INLET FILTER

NOT TO SCALE



- FENCE POSTS DRIVEN

INTO GROUND 1"

MINIMUM

SEDIMENT CONTROL FENCE

SPACING 6' MAX

EROSION CONTROL NOTES

1. REFER TO THE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS AND RESPONSIBILITIES.

2. ALL EROSION AND SEDIMENTATION CONTROL WORK SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF DETROIT, WAYNE COUNTY, AND EPA. 3. ANY EROSION AND SEDIMENTATION FROM WORK ON THIS SITE SHALL BE CONTAINED WITHIN THE WORK AREA AND NOT ALLOWED TO COLLECT ON ANY OFF-SITE AREAS OR IN WATERWAYS (WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES, PONDS AND WETLANDS)

4. THE CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS DIRECTED ON THESE PLANS AND WHENEVER OTHERWISE REQUIRED BY THE WORK. THE CONTRACTOR SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES, AND OTHER CHANGES HAVE BEEN

ACCOMPLISHED.

5. SOIL EROSION CONTROL PRACTICES WILL BE ESTABLISHED IN EARLY STAGES OF CONSTRUCTION BY THE CONTRACTOR. SEDIMENTATION CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF DIRT OUT OF THE WORK AREA.

6. THE CONTRACTOR SHALL PRESERVE NATURAL VEGETATION AS MUCH AS POSSIBLE.

KEEPING REQUIREMENTS.

APRIL 20) FOR ALL AREAS TO BE SEEDED.

SCRAPING SHALL BE PERFORMED IN CONJUNCTION WITH THIS SWEEPING ON AN AS NEEDED BASIS.

7 PROTECT ALL EXISTING TREES, INCLUDING THEIR BRANCHES AND ROOTS, FROM DAMAGE DUE TO THIS WORK UNLESS SPECIFICALLY IDENTIFIED FOR REMOVAL.

9. THE CONTRACTOR SHALL SWEEP THE EXISTING STREETS SURROUNDING THE PROJECT SITE ONCE A WEEK, OR AS DIRECTED BY THE ENGINEER OR INSPECTOR. STREET

10. THE SEDIMENT CONTROL FENCING INDICATED ON THIS PLAN IS NOT INTENDED TO SHOW THE EXACT LOCATION OF THE FENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR

THE INSTALLATION AND MAINTENANCE REQUIRED TO CONTAIN SEDIMENT. 11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING COMPLIANCE WITH ALL APPLICABLE NPDES REGULATIONS, INCLUDING: INSPECTION, RESTORATION, AND RECORD

12. THE CONTRACTOR IS RESPONSIBLE FOR ON-GOING MAINTENANCE OF ALL SOIL EROSION CONTROLS AS INDICATED BY THESE PLANS.

8. VEGETATION STABILIZATION OF ALL DISTURBED AREAS SHALL BE ESTABLISHED WITHIN 15 DAYS OF COMPLETION OF FINAL GRADING.

EXCAVATED MATERIAL) SHALL BE ACCOMPLISHED IN ONE CONTINUOUS OPERATION. 14. PAVEMENT AND/OR VEGETATION SHALL NOT BE STRIPPED FROM AN AREA UNLESS CONSTRUCTION ACTIVITIES ARE TO COMMENCE IN THAT AREA WITHIN THE NEXT THREE

13. CONSTRUCTION ACTIVITIES (INCLUDING INSTALLATION OF PIPE AND ASSOCIATED VALVES, STRUCTURES, BACK FILLING, SURFACE RESTORATION, AND REMOVAL OF EXCESS

DAYS. 15. IF FOR ANY REASON PERMANENT STABILIZATION CAN NOT BE PROVIDED WITHIN 15 DAYS OF THE COMPLETION OF PIPE LAYING OPERATIONS, TEMPORARY STABILIZATION SHALL BE PROVIDED AT ALL DISTURBED AREAS. TEMPORARY STABILIZATION SHALL FURTHERMORE BE PROVIDED DURING THE NON-GROWING SEASON (OCTOBER 1 THROUGH

16. TEMPORARY STABILIZATION SHALL CONSIST OF EITHER SMALL GRAIN STRAW OR GRASS HAY SPREAD AT THE RATE OF 1.5 TO 2 TONS PER ACRE, OR MULCH BLANKETS, WHICH SHALL BE ANCHORED IN PLACE TO PREVENT DISPLACEMENT FROM WIND AND RAIN. TEMPORARY STABILIZATION SHALL BE REPAIRED AS OFTEN AS NECESSARY, AS DETERMINED BY THE AGENCY WITH JURISDICTION.

17. ALL DEWATERING SHALL BE ACCOMPLISHED IN A MANNER THAT WILL NOT CONTRIBUTE TO DEPOSITION OF SEDIMENT IN ROAD DITCHES OR OPEN WATER. 18. THIS PROJECT SHALL BE CONSTRUCTED IN COMPLIANCE WITH PART 91 OF ACT 451 OF 1994, AS AMENDED.

19. SEDIMENT CONTROL FENCING SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND SEVERAL TIMES DURING PROLONGED STORM EVENTS. IF THE FENCE IS SAGGING, OR SOIL HAS REACHED ONE HALF OF THE HEIGHT OF THE FABRIC, THE SOIL BEHIND THE FABRIC SHALL BE REMOVED AND DISPOSED OF IN A STABLE AREA OF THE SITE. IF WATER IS SEEPING UNDER THE FENCE, OR THE FABRIC IS DECOMPOSED OR OTHERWISE INEFFECTIVE, THE FENCE SHALL BE REMOVED AND PROPERLY REINSTALLED AS INDICATED ON THESE PLANS.

20. MUD MAT ENTRANCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH STORM RAINFALL. THE SURROUNDING ROADS SHALL ALSO BE INSPECTED AT THIS TIME FOR EVIDENCE THAT MUD IS BEING TRACKED OFF OF THE SITE. MAINTENANCE SHALL INCLUDE THE INSTALLATION OF ADDITIONAL LAYERS OF STONE WHEN THE ORIGINAL STONE BECOMES

COVERED WITH MUD. ALL SEDIMENT DROPPED OR TRACKED ONTO PUBLIC RIGHT-OF-WAYS SHALL BE REMOVED IMMEDIATELY BY SWEEPING AND SCRAPING (AS MAY BE

21. SEDIMENT INLET FILTERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND SEVERAL TIMES DURING PROLONGED STORM EVENTS. THE FILTERS SHALL BE CLEANED PERIODICALLY THROUGHOUT CONSTRUCTION TO AVOID CLOGGING. FILTERS THAT CANNOT BE MAINTAINED BY CLEANING SHALL BE COMPLETELY REPLACED.

EROSION CONTROL SEQUENCE

1. INSTALL MUD MATS, SILT FENCE AND INLET FILTERS AT ALL EXISTING LOCATIONS AS SHOWN AND AS REQUIRED TO ACHIEVE ON-SITE CONTAINMENT.

2. CLEAR AND ROUGH GRADE THE PROJECT "WORK AREA" AS NEEDED.

3. INSTALL PROPOSED SEAWALL IMPROVEMENTS PER PLANS AND DETAILS FINAL GRADE WORK AREA AS SHOWN ON PLANS.

4. CLEAR ALL ACCUMULATED SILT AND REMOVE ALL EROSION CONTROL DEVICES. 5. INSTALL LANDSCAPING MATERIALS AS INDICATED PER PLANS & RE-SEED, FERTILIZE AND MULCH ALL DISTURBED AREAS.

RESTORATION NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF LOCAL

2. ALL AREAS NOT BUILT, LANDSCAPED, OR PAVED UPON SHALL RECEIVE SEASONED DOUBLE SHREDDED

HARDWOOD BARK MULCH.

3. DURING INSTALLATION AND CONSTRUCTION, THE CONTRACTOR MUST PROVIDE A WATERING

METHOD FOR ALL PLANT MATERIAL UNTIL IT HAS BECOME ESTABLISHED 4. TWO (2) YEAR GUARANTEE PERIOD BEGINS AT FINAL ACCEPTANCE OF LANDSCAPE MATERIAL BY THE CITY'S REPRESENTATIVE, A LANDSCAPE ARCHITECT, AND PRIOR TO THE AUTHORIZATION OF THE

OCCUPANCY PERMIT. 5. A MINIMUM OF ONE CULTIVATION IN EACH MONTH OF JUNE, JULY, AND AUGUST SHALL BE

PERFORMED WITHIN THE 2-YEAR WARRANTY PERIOD.

6. THE DEVELOPMENT OF THIS SITE WILL NOT RESULT IN ANY INCREASE IN DUST, ODOR, SMOKE, FUMES, NOISE, LIGHTS, OR OTHER OBJECTIONABLE FEATURES. 7. GRASS SEED SHALL BE CERTIFIED TURF GRASS SEED COMPLYING WITH A.S.P.A SPECIFICATIONS, AND

FREE OF WEED SEEDS AND UNDESIRABLE NATIVE GRASSES. SEEDED AREAS SHALL NOT BE PERMITTED TO DRY OUT. ALL LAWN AREAS SHALL BE FERTILIZED AND WATERED AS REQUIRED DURING THE FIRST GROWING SEASON TO MAINTAIN A DENSE AND VIGOROUS GROWING LAWN. AREAS SCHEDULED FOR LAWN SEED SHALL RECEIVE A MINIMUM OF 3" OF SCREEN TOPSOIL AT 3" DEPTH UNLESS OTHERWISE

NOTED ON PLANS.

30% PERENNIAL RYEGRASS

20% PARK KENTUCKY BLUEGRASS

45% CREEPING RED FESCUE 5% ANNUAL RYEGRASS

GEOTEXTILE

4 LB /1000 SF SEEDING RATE 8. IT SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR TO PROVIDE WATER AS REQUIRED TO ENSURE DELIVERY OF PROPER AND ADEQUATE WATER SUPPLY TO ALL PLANT MATERIAL TO ENSURE THE ESTABLISHMENT OF HEALTHY PLANT MATERIAL FOR THEIR FIRST YEAR OF GROWTH. FOLLOWING THE LANDSCAPE CONTRACTOR'S TWO-YEAR IRRIGATION REQUIREMENT PERIOD, THE CONTRACTOR SHALL PROVIDE THE OWNER WITH SUGGESTED IRRIGATION MAINTENANCE SCHEDULE FOR THEIR USE.

> SEE PLAN FOR **DIMENSIONS** 2" - 3" DIAMETER COARSE AGGREGATE (6" MINIMUM THICKNESS) OVER WOVEN GEOTEXTILE LINER -

> > . ENSURE MUDMAT AND SEDIMENT IS NOT TRANSPORTED ONTO PAVED ROADS. AGGREGATE PAD REQUIRED TO PROVIDE BUFFER AREA FOR VEHICLES TO DROP MUD AND SEDIMENT THEREBY CONTROLLING DUST AND SEDIMENT FROM SURFACE RUNOFF INSTALL AND MAINTAIN AS SPECIFIED ON SOIL EROSION AND SEDIMENTATION CONTROL PLAN.

AGGREGATE MUD MA⁻



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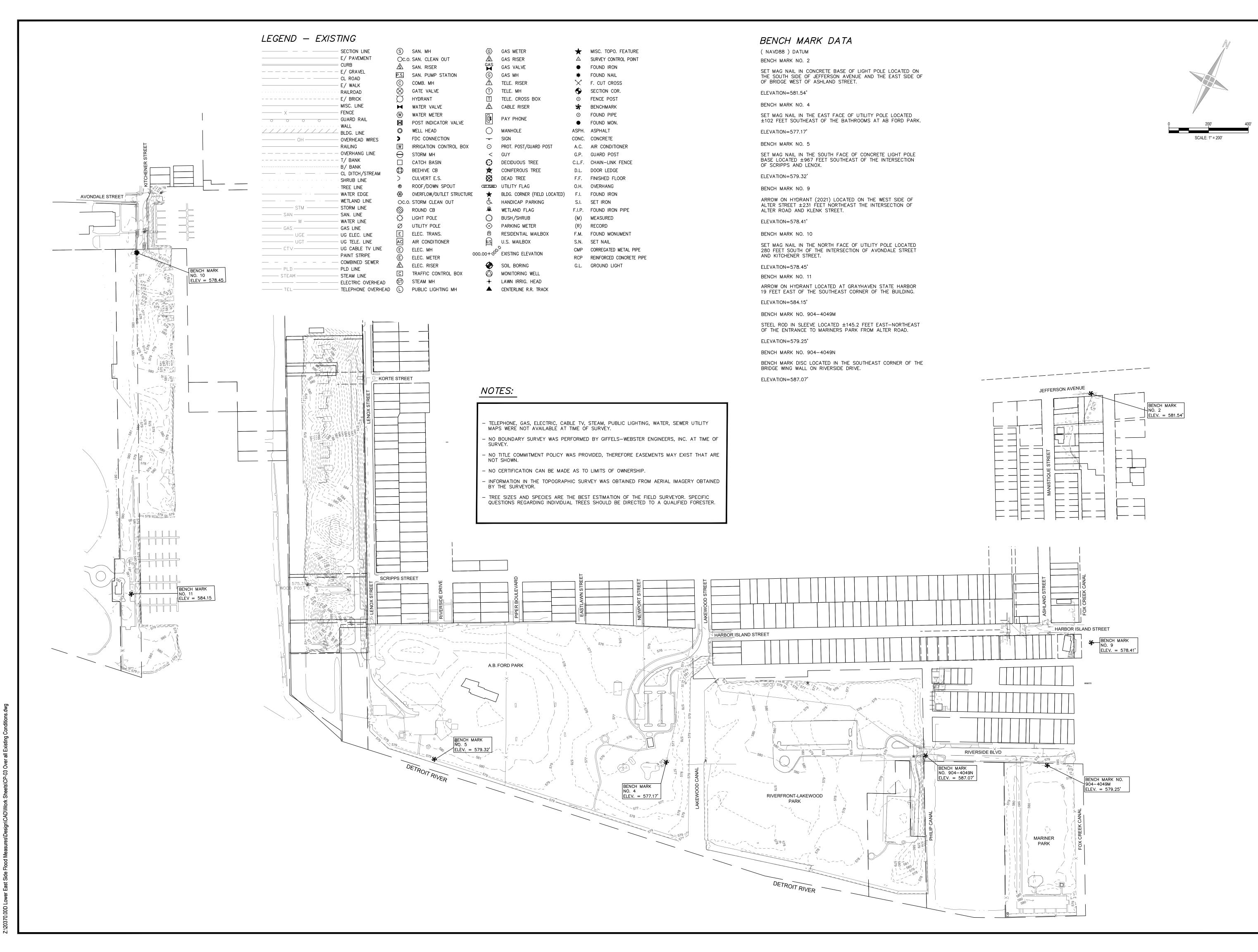


NOTES AND DETAILS

DETROIT LOWER EAST SIDE FLOOD MITIGATION PROJECT

> CITY OF DETROIT WAYNE COUNTY MICHIGAN

06.13.23 NONE Scale: CP-02 Sheet: Project: 20370.00D





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OVERALL EXISTING CONDITIONS PLAN

DETROIT LOWER EAST SIDE FLOOD MITIGATION PROJECT

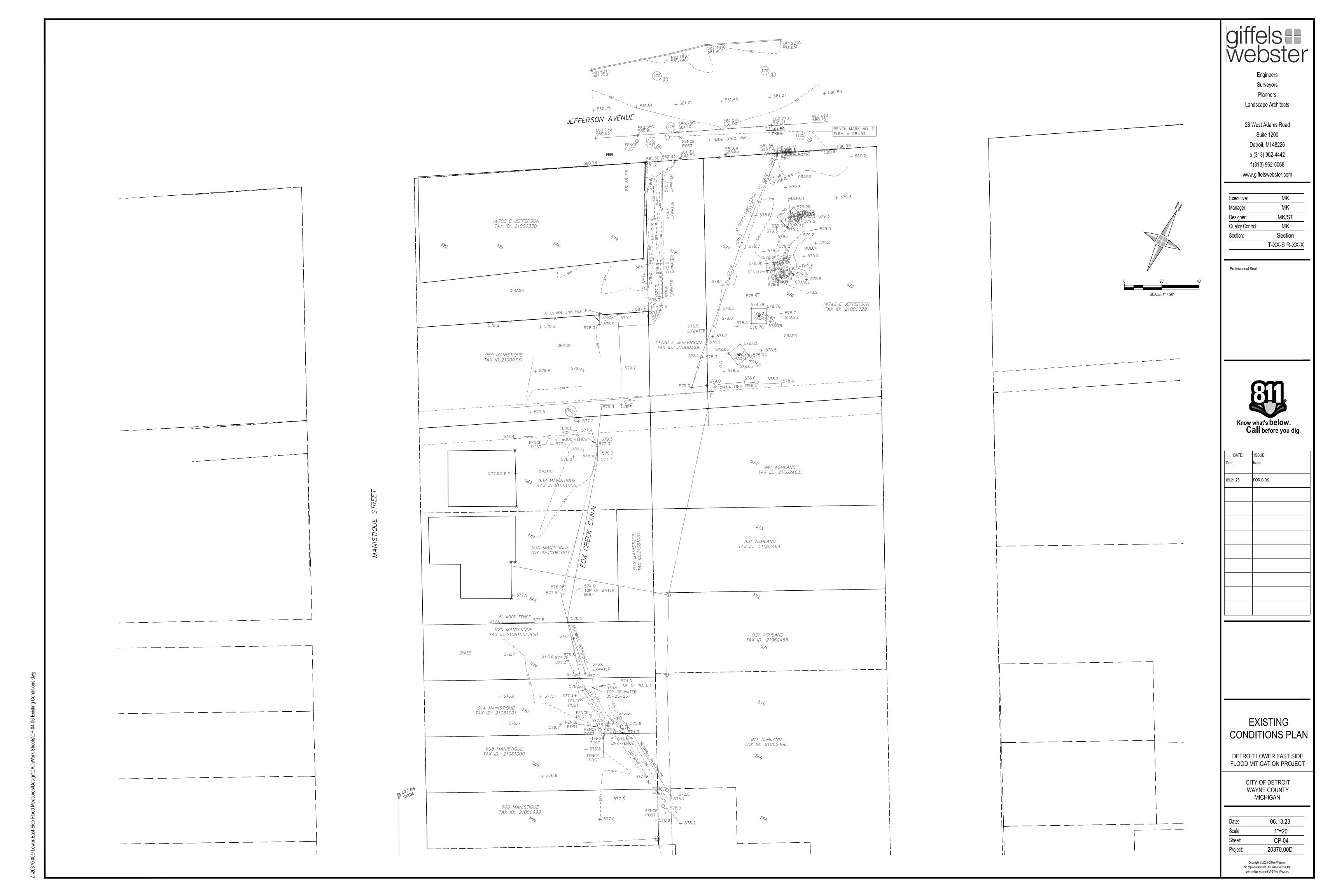
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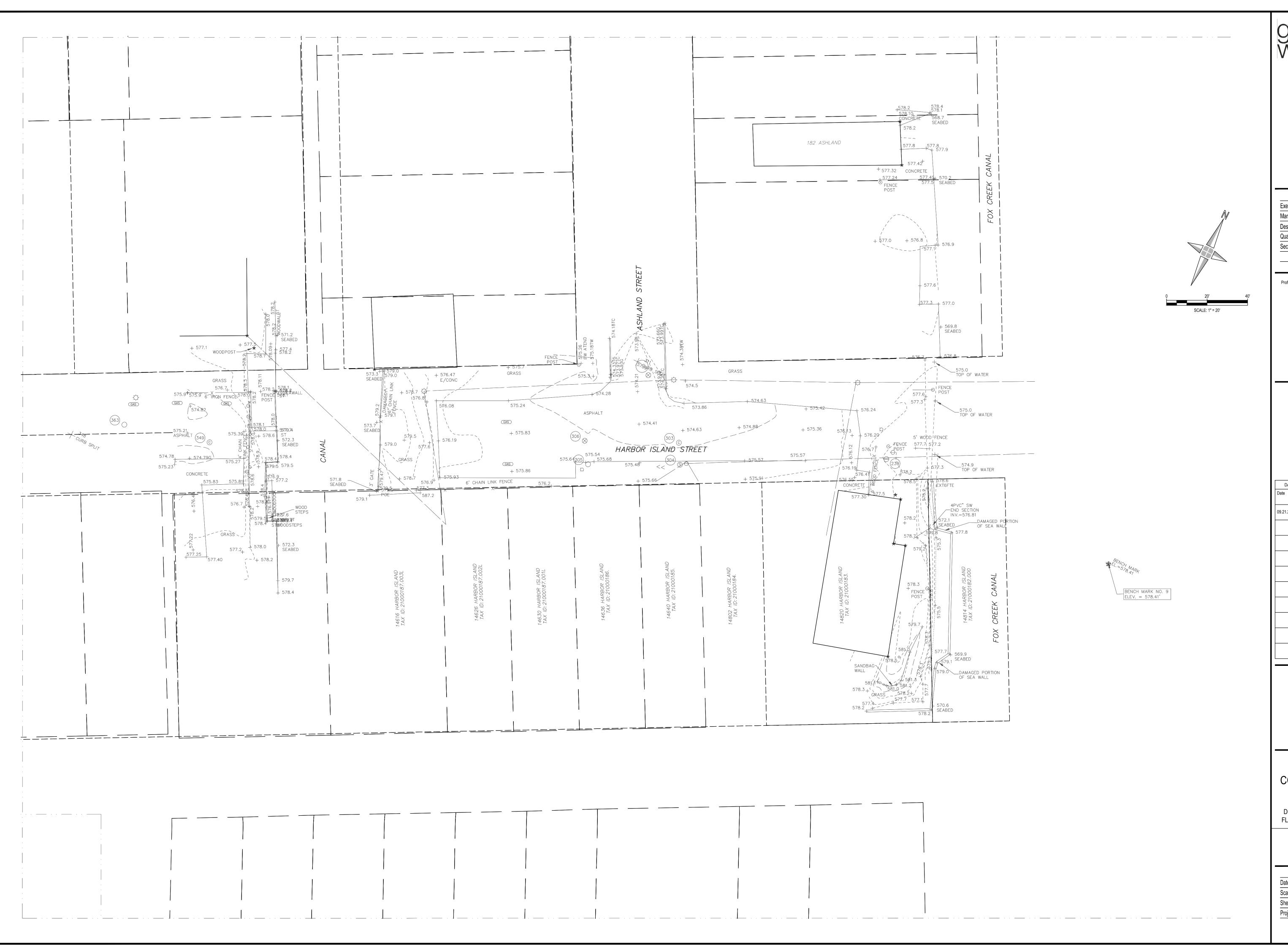
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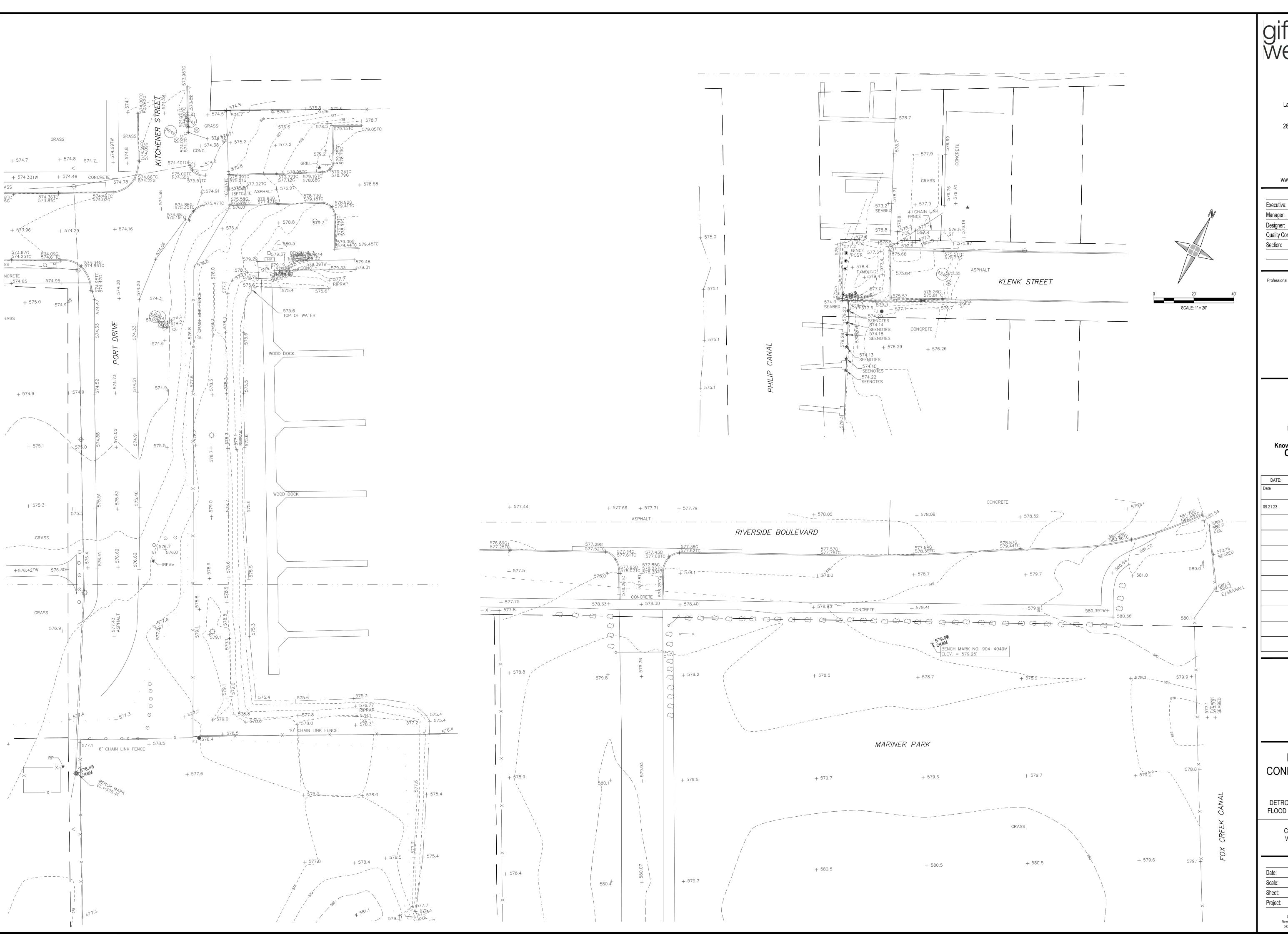
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EXISTING CONDITIONS PLAN

DETROIT LOWER EAST SIDE FLOOD MITIGATION PROJECT

CITY OF DETROIT WAYNE COUNTY MICHIGAN

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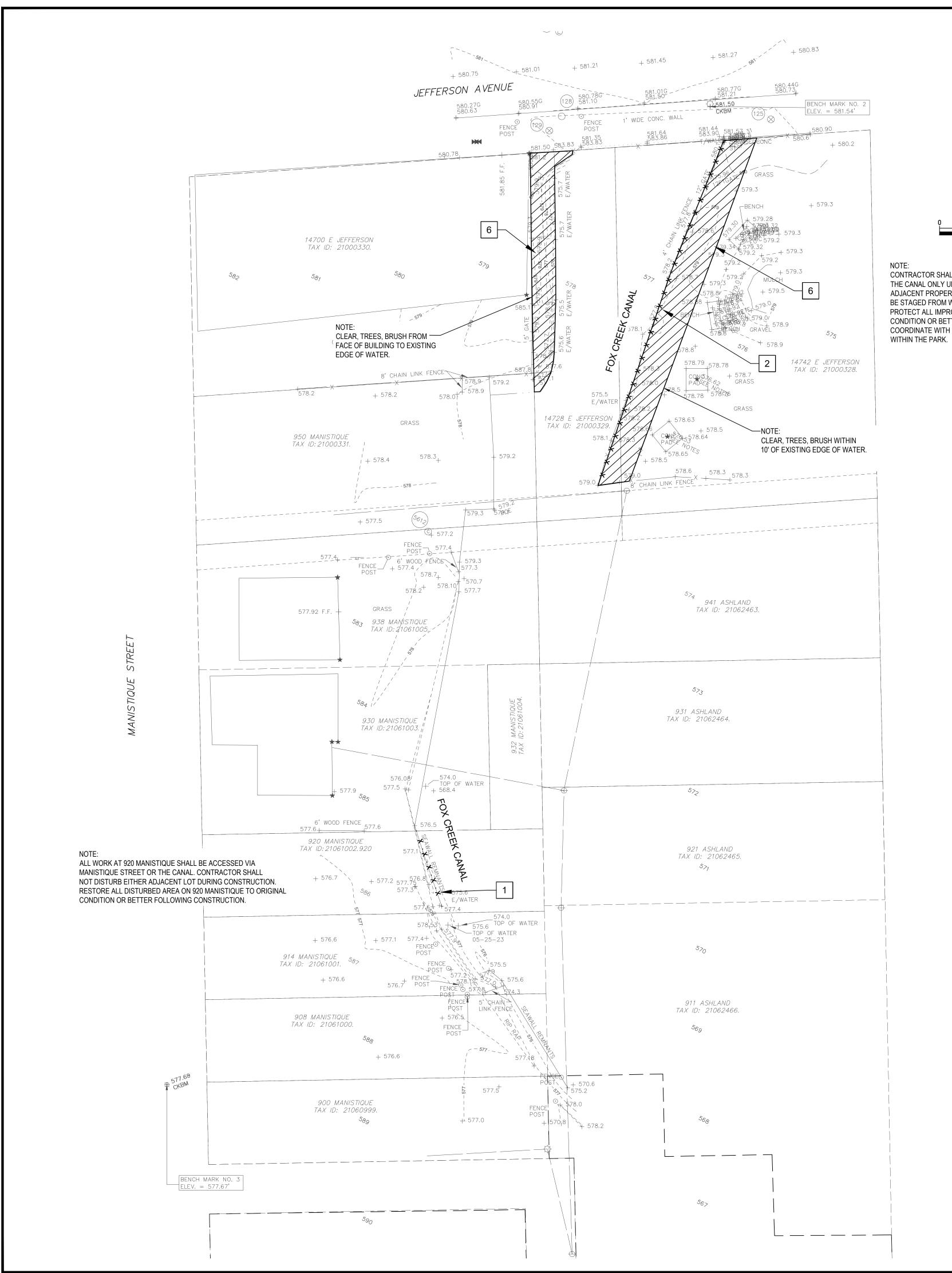
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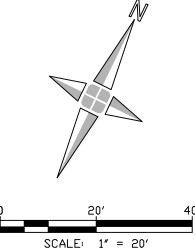
EXISTING CONDITIONS PLAN

DETROIT LOWER EAST SIDE FLOOD MITIGATION PROJECT

> CITY OF DETROIT WAYNE COUNTY MICHIGAN

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NOTE:
CONTRACTOR SHALL ACCESS WORK ON WEST SIDE OF CANAL FROM
THE CANAL ONLY UNLESS WRITTEN PERMISSION IS OBTAINED FROM
ADJACENT PROPERTY OWNERS. WORK ON EAST SIDE OF CANAL MAY
BE STAGED FROM WITHIN EXISTING PARK. CONTRACTOR SHALL
PROTECT ALL IMPROVEMENTS AND RESTORE GRADE TO ORIGINAL
CONDITION OR BETTER FOLLOWING COMPLETION OF WORK.
COORDINATE WITH GLWA AS REQUIRED FOR THEIR PROPOSED WORK

QUANTITIES THIS SHEET DEMOLITION PLAN - KEYNOTES

1 EXISTING SEA WALL, TO BE REMOVED - 29 FT

2 EXISTING FENCE, TO BE REMOVED - 133 FT

3 EXISTING FENCE POST, TO BE REMOVED

4 SAWCUT AND REMOVE EXISTING PAVEMENT

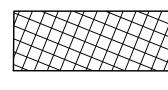
5 EXIST. BOULDERS REMOVE, SALVAGE AND REINSTALL

6 CLEARING, TREES, BRUSH AS NEEDED FOR CONSTRUCTION PER PLAN - 0.05 AC.

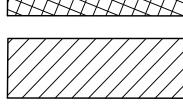
7 RELOCATE EXISTING PICNIC TABLE

DEMOLITION LEGEND

PAVEMENT REMOVAL



CLEARING, TREES, BRUSH





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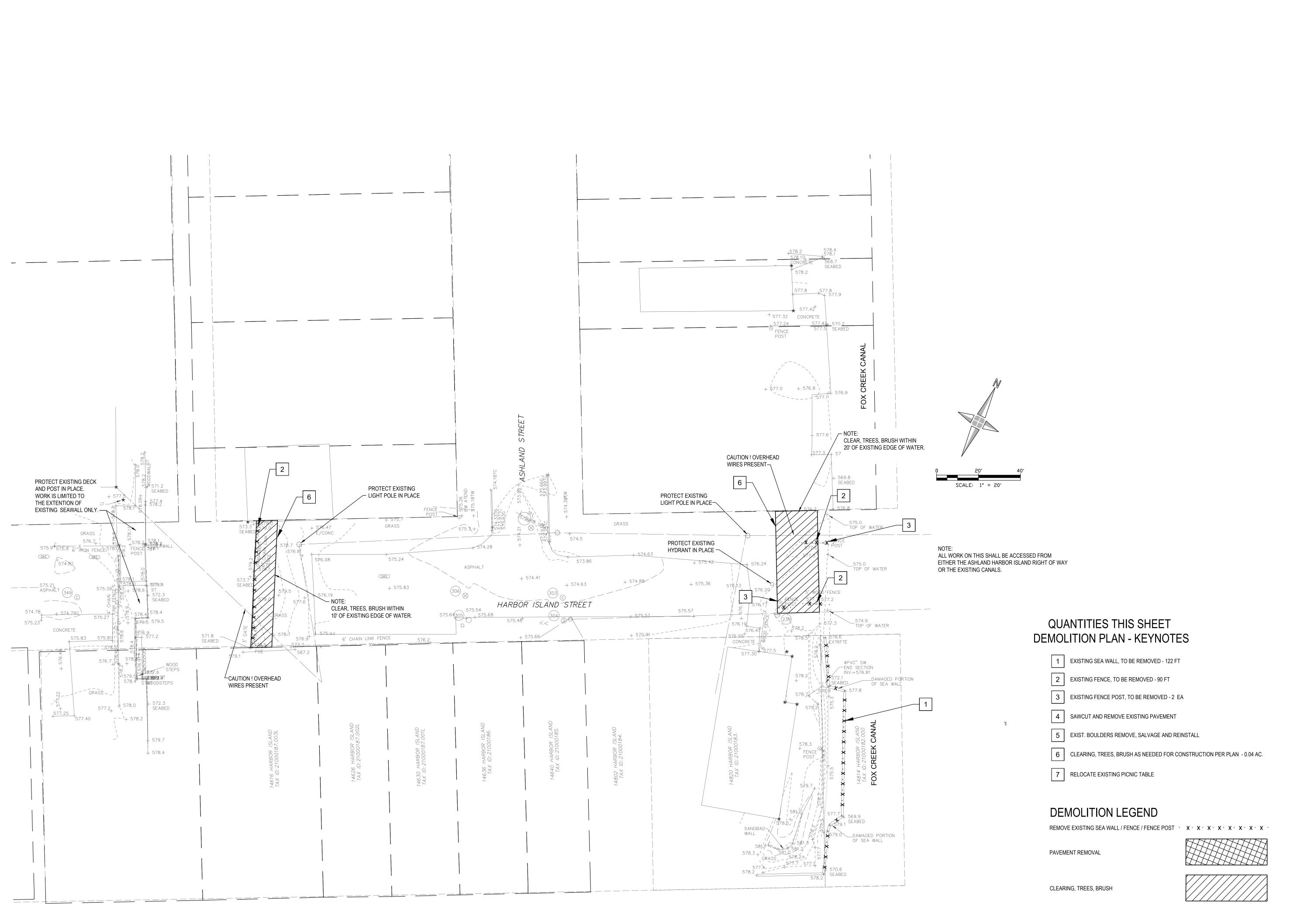
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DEMOLITION & SOIL EROSION PLAN

DETROIT LOWER EAST SIDE FLOOD MITIGATION PROJECT

CITY OF DETROIT WAYNE COUNTY MICHIGAN

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DEMOLITION & SOIL EROSION PLAN

DETROIT LOWER EAST SIDE FLOOD MITIGATION PROJECT

CITY OF DETROIT WAYNE COUNTY MICHIGAN

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 06.13.23

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 1"=20'

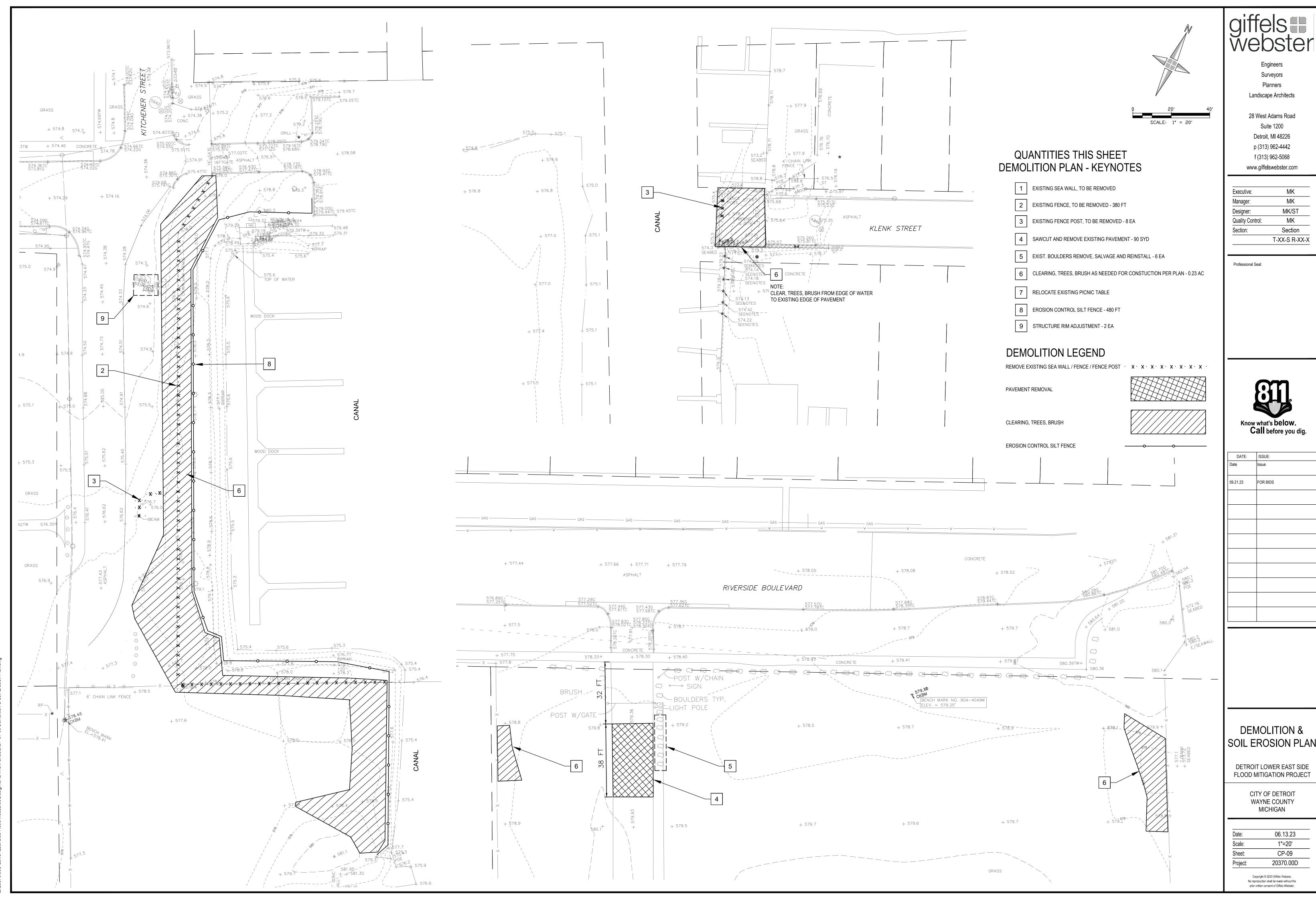
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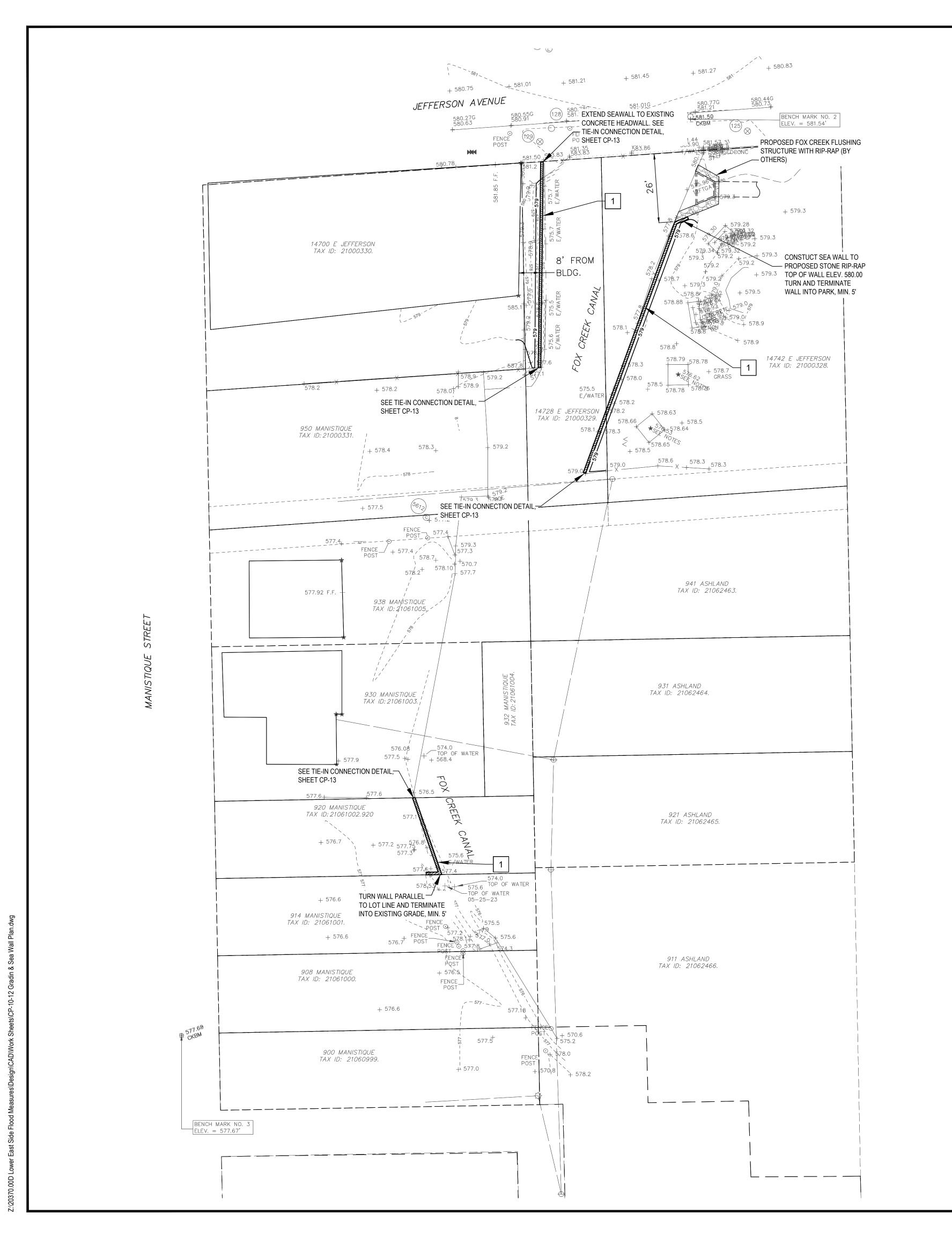
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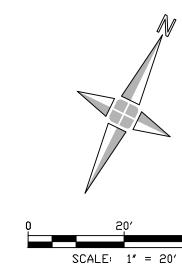
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QUANTITIES THIS SHEET IMPROVEMENT - KEYNOTES

1 PROVIDE AND INSTALL NEW SEAWALL - 227 FT

2 PROVIDE AND INSTALL NEW SEAWALL EXTENSION

RESTORATION - LUMP SUM

LEGEND

SEE SHEET CP-13 FOR ALL SEAWALL DETAILS

NEW SEAWALL, TOP OF WALL ELEVATION = 580.00' NEW CONCRETE BARRIER WALL ON TOP OF EXISTING WALL, ELEVATION = 580.00'



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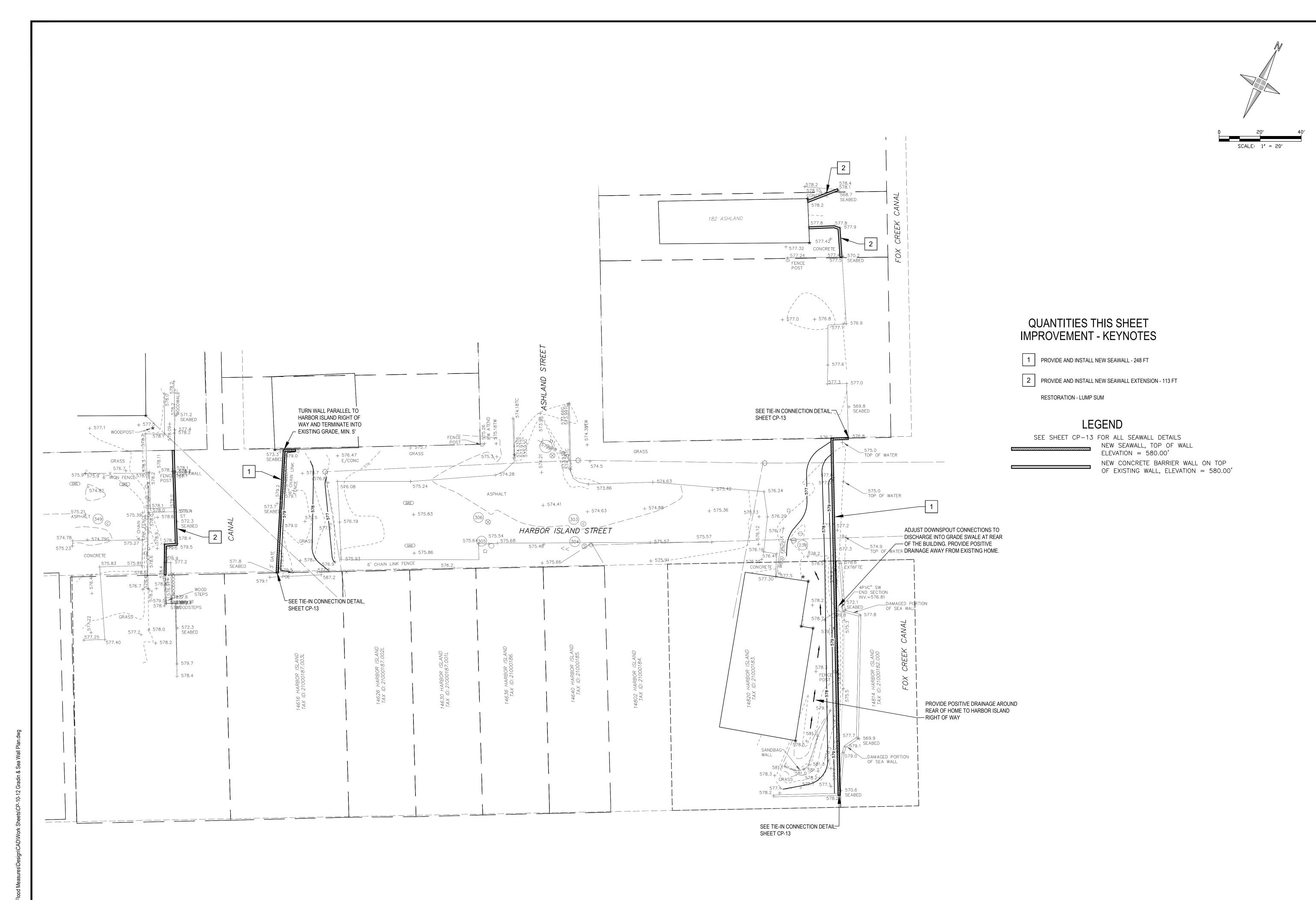
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GRADING & SEA WALL PLAN

DETROIT LOWER EAST SIDE FLOOD MITIGATION PROJECT

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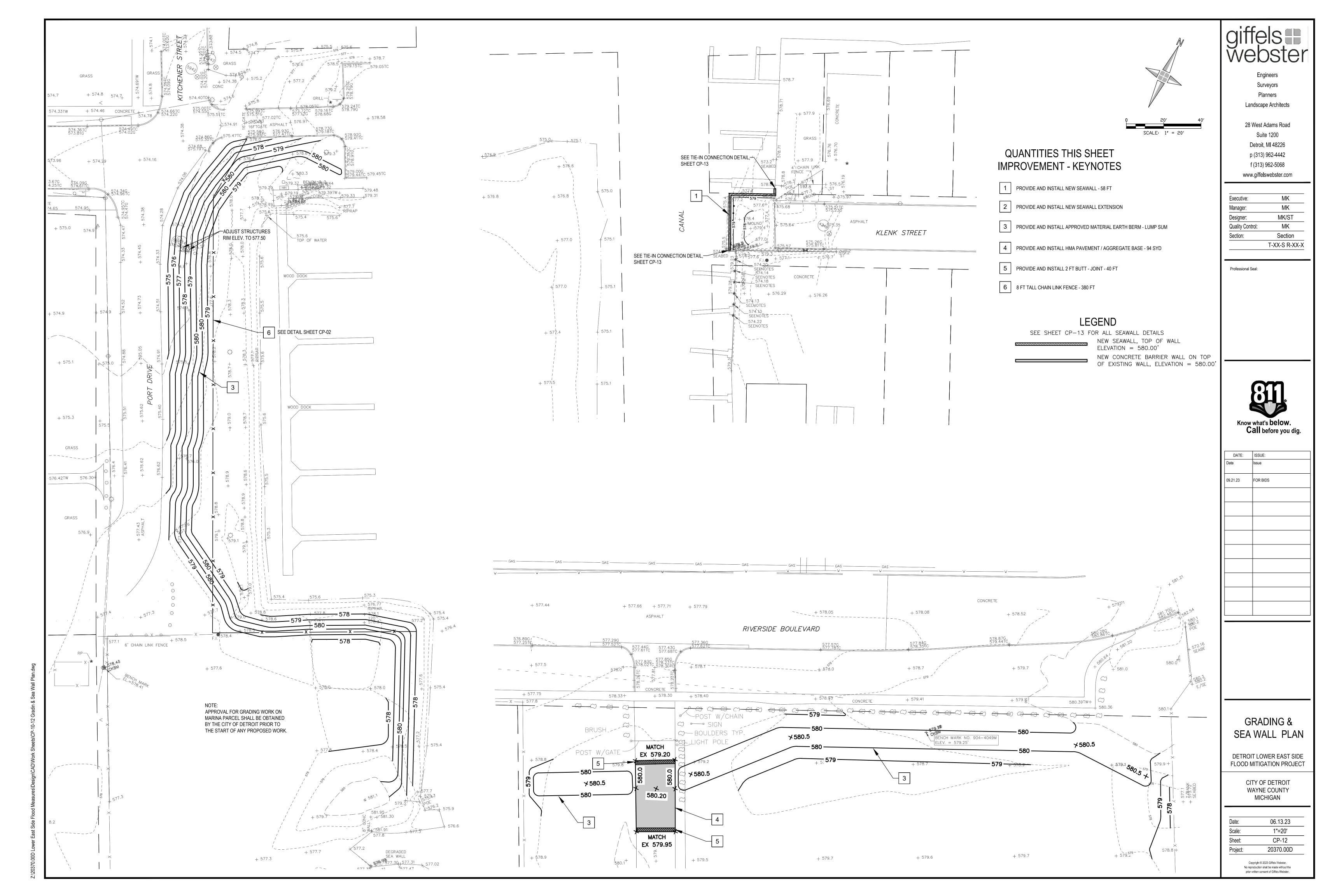
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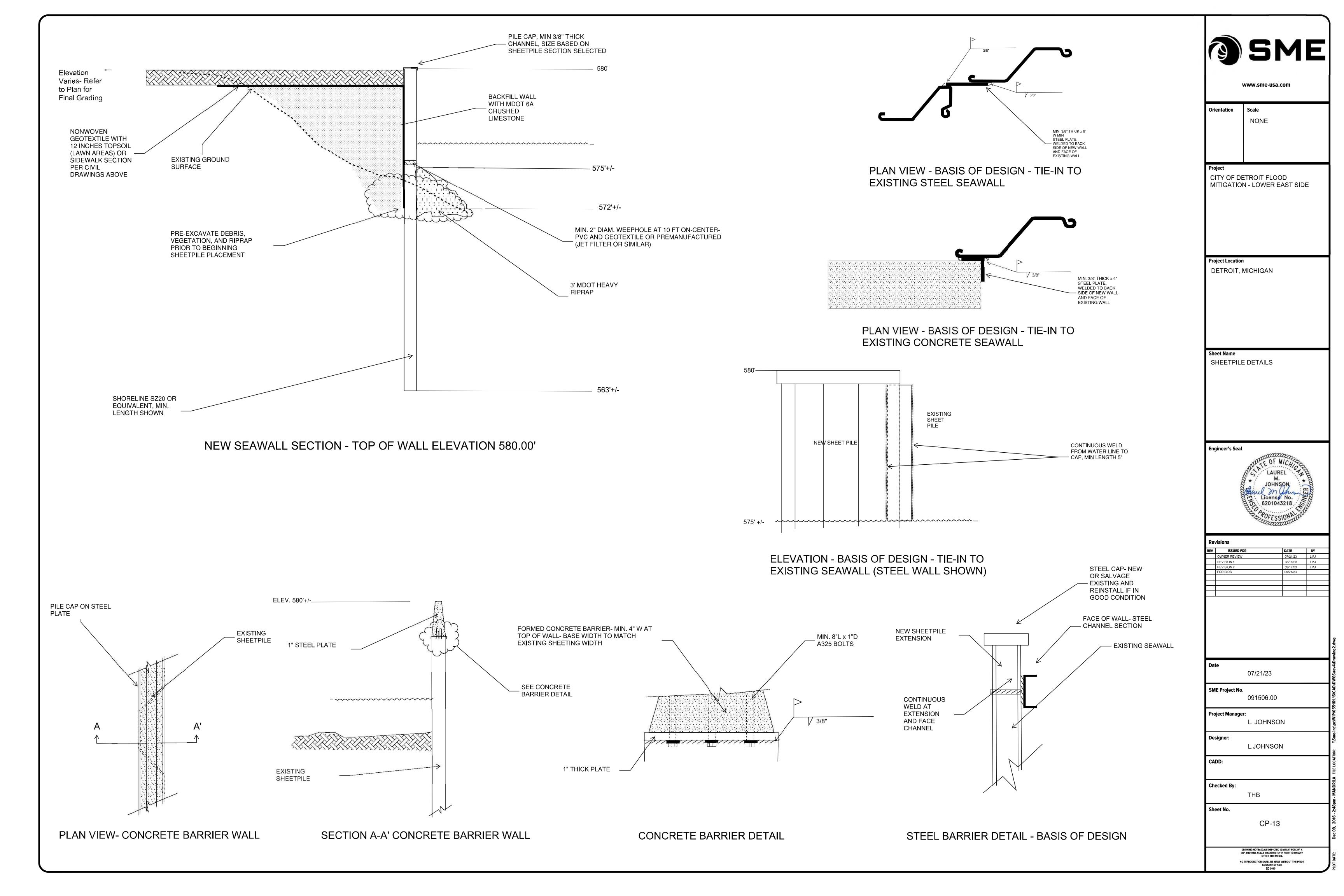
GRADING & SEA WALL PLAN

DETROIT LOWER EAST SIDE FLOOD MITIGATION PROJECT

CITY OF DETROIT WAYNE COUNTY MICHIGAN

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SEAWALL MAINTENANCE

SEAWALLS SHALL BE MAINTAINED AND INSPECTED IN GENERAL ACCORDANCE WITH US ARMY CORPS OF ENGINEERS PUBLICATION "EM 1110-2-2502- FLOODWALLS AND OTHER HYDRAULIC RETAINING WALLS", DATED AUGUST 1, 2022 SEAWALLS SHALL BE INSPECTED BY AN EXPERIENCED ENGINEER OR ENGINEERING TECHNICIAN OR BY A MARINE CONTRACTOR, IF FUTURE CONSTRUCTION IS PLANNED ON CITY-OWNED PARCELS, CONSIDER A DEVELOPMENT RIDER FOR AFFECTED PROPERTIES SUCH THAT REVIEW OF SEAWALLS, TIEBACKS, DEADMEN, DOCKS AND ASSOCIATED STRUCTURES ARE PROPERLY PROTECTED OR ARE REPLACED IF DAMAGED DURING CONSTRUCTION OPERATIONS. CORROSION

- . UNPROTECTED EXPOSED STEEL EXPOSED TO FRESH WATER ERODES AT RATES OF 2 TO 5 MILS PER YEAR, WITH THE "SPLASH ZONE" BETWEEN STILL WATER ELEVATION AND UPPER LEVEL WAVE ACTION MOST CRITICAL. MAINTAINING COATINGS AND REGULARLY REVIEWING THE SPLASH ZONE IS CRITICAL IN PREVENTING SEAWALL FAILURE DUE TO CORROSION
- 2. PROTECT SEAWALLS FROM CORROSION USING APPLICATION OF A PROTECTANT TO FIGHT RUST. SKYCO OSPHO (OR SIMILAR) OR MARINE-GRADE PAINT CAN BE USED FOR THIS PURPOSE
- 3. TO REDUCE CORROSION, WELL-DRAINING MATERIAL MUST BE PROVIDED IMMEDIATELY BEHIND THE WALL. DO NOT BACKFILL WALLS WITH CLAY OR ORGANIC SOILS. DRAINAGE MATERIAL SHOULD CONSIST OF CRUSHED NATURAL AGGREGATE OR WELL-DRAINING NATURAL SAND (MDOT CLASS II).

LANDSCAPING, USAGE, AND DRAINAGE

- SELECT PLANTINGS CAREFULLY. DO NOT PLANT LARGE TREES OR HEAVY VEGETATION NEAR THE SEAWALLS. IN ADDITION TO POTENTIALLY CAUSING DIRECT DAMAGE THE TREES OR VEGETATION CAN OBSTRUCT VISUAL INSPECTIONS.
- 2. REMOVE EXISTING TREES AND SCRUB BEHIND NEW SEAWALLS AND EXISTING SEAWALLS TO BE MAINTAINED. IN GENERAL, TREES SHOULD BE LOCATED NO CLOSER TO SEAWALLS THAN THE EDGES OF CANOPIES AT MATURITY.
- TO MAINTAIN DRAINAGE AWAY FROM THE WALL AND PREVENT PONDING OF WATER BEHIND THE WALL.
- 4. INFILL ANY SUBSIDENCE OR EROSION AT THE INBOARD SIDE OF THE WALL REGULARLY TO PREVENT "BIRD BATHS" BEHIND THE WALL.
- 5. MAINTAIN SIDEWALKS SUCH THAT SIDEWALKS SLOPE DOWNWARD AWAY FROM SEAWALLS. SEAL SLAB JOINTS AND ADDRESS CRACKS AS THEY DEVELOP TO PRVENT EROSION FROM STORMWATER INFILTRATION.
- 6. DISCOURAGE BURROWING ANIMALS FROM TAKING UP RESIDENCE ALONG THE INBOARD SIDE OF THE WALL. LOOK FOR BURROWS OR DENS BELOW SURFACE STRUCTURES.
- EXERCISE CARE WHEN EXCAVATING BEHIND THE WALLS TO PREVENT DAMAGING TIEBACKS AND DEADMEN AND ANY UTILITIES (E.G. ELECTRICAL LINES). FUTURE CONSTRUCTION SHOULD CONSIDER THE WHOLE SEAWALL STRUCTURE INCLUDING TIE RODS AND DEADMEN.
- 8. DO NOT ALLOW UTILITIES TO ABUT OR TIE INTO SEAWALLS. GUYED INSTALLATIONS SHOULD NOT BE ANCHORED TO SEAWALLS OR DEADMEN.
- WHERE WATERCRAFTS ARE MOORED ALONG THE SEAWALL, INSTALL AND MAINTAIN MOORING POSTS IN THE CHANNEL AND BETWEEN SLIPS AND PLACE FENDERS ALONG THE FACE OF THE WALL TO REDUCE THE RISK OF IMPACT DAMAGE.

INSPECTION AND MAINTENANCE

RISK ASSESSMENT, INCLUDING ECONOMIC RISK AND HAZARD INDENTIFICATION, IS NOT INCLUDED IN ENGINEERING AND MAIN LENANCE.

- ESTABLISH A BASELINE SURVEY FOR EXISTING WALLS INCLUDING HORIZONTAL AND VERTICAL ALIGNMENT OF TOPS OF WALLS AND GROUND SURFACE ELEVATIONS WITHIN 15 FEET INBOARD OF THE BACK OF WALL
- 2. MAINTAIN AN ACTIVE MAP OF TIEBACK AND DEADMAN LOCATIONS. ONCE EVERY 10 YEARS, VERIFY THE ANCHORS FOR THE TIEBACKS ARE STILL IN PLACE BY OBSERVING THE EXPOSED FACE OF THE SEAWALL AND PULLING ON THE HEAD TO SEE THEY ARE STILL SECURE.
- 3. PERFORM MAINTENANCE, REPAIR, AND REPLACEMENT IN A MANNER THAT DOES NOT CREATE ADDITIONAL SYSTEM RISK. CORRECT DEFICIENCIES AS SOON AS OBSERVED IN A MANNER THAT DOES NOT INCREASE THE RISK OF FAILURE NEAR THE REPAIR AREA.
- 4. INSPECT SEAWALLS ON, AT MINIMUM, A 2-YEAR CYCLE OR AFTER CRITICAL EVENTS SUCH AS PROLONGED HIGH WATER, VESSEL IMPACT, UTILITY FAILURE, OR DAMAGE TO TIEBACKS AND/OR DEADMAN. ONCE EVERY 10 YEARS, REVIEW SUBMERGED PORTIONS OF SEAWALLS, INCLUDING ANY RIPRAP.
- 5. SEAL MINOR CRACKS/GAPS IN THE SEAWALL AND ANY HARD SURFACING (CONCRETE SLABS) WITH MARINE GROUT. CRACKS AND GAPS CAN LEAD TO PIPING OF SOIL, ACCELERATED CORROSION AROUND THE CRACK/GAP, EROSION, AND SINKHOLES ALONG THE INBOARD SIDE OF THE WALL
- 6. REPAIR TEARS AND BREAKS IN STEEL WALLS BY WELDING. APPLY CORROSION PROTECTION AFTER REPAIR.
- CORRODED TIES, PLATES AND NUTS. REATTACH LOOSE STEEL SEAWALL CAP SECTIONS USING AN APPROPRIATE WELDING METHOD. REPAIR SPALLED OR DAMAGED CONCRETE CAPS.
- 8. WHERE PROPERLY DESIGNED AND INSTALLED WEEPS OR STORM OUTLETS EXTEND THROUGH THE FACE OF THE WALL VERIFY WEEPS AND OUTLETS ARE FREE OF DEBRIS. REMOVE AND CLEAN/REPLACE FILTERS IF THEY BECOME CLOGGED.
- 9. WHERE STORM SEWERS EXTEND THROUGH THE WALL, VERIFY THE OUTLET IS INTACT AND DOES NOT APPEAR TO HAVE SHIFTED/FAULTED/SEPARATED FROM THE WALL. SEAL GAPS BETWEEN STORM SEWERS AND THE SEAWALL WITH MARINE GROUT OR WATERPROOF FLEXIBLE SEALANT.
- 10. INSPECT EXPOSED WALLS FOR CORROSION (E.G., PEELING PAINT, FLAKING OF EXPOSED STEEL, EXCESSIVE LOSS OF STEEL CROSS SECTIONS, ETC.). TREAT EXCESSIVE CORROSION AS SOON AS IT IS OBSERVED. USE A RUST INHIBITOR COATING OR RUST CONVERTER PRODUCT SAFE FOR USE AROUND WATERWAYS, SUCH AS CORROSEAL OR SIMILAR. WHERE DAMAGE FROM VESSEL IMPACT IS OBSERVED, REPAIR PROMPTLY.
- 11. REVIEW AREAS BEHIND WALLS FOR DEPRESSIONS AND ANIMAL BURROWS. INVESTIGATE THE CAUSE OF THE DEPRESSIONS (I.E., LOSS OF GROUND THROUGH OPENINGS IN THE SEAWALL) AND REPAIR CAUSE OF DEPRESSIONS. FILL ANIMAL BURROWS WITH PEA GRAVEL, SAND, OR GROUT WHERE OBSERVED.
- 12. REGULARLY REVIEW THE TOPS AND FACES OF SEAWALLS TO FOR EVIDENCE OF EXCESSIVE LATERAL OR VERTICAL MOVEMENTS. VERIFY THEY ARE IN ALIGNMENT AND ARE NOT BOWING/TILTING OUTWARD AND/OR SETTLING. BULGING OR OUTWARD ROTATION IS OFTEN A SIGN THAT DEADMEN AND TIEBACKS HAVE BEEN DAMAGED. NOTE, ONCE THE SHEET PILING HAS MOVED IT IS VERY DIFFICULT TO PULL BACK INTO POSITION AND IT IS MUCH EASIER (AND LESS DISRUPTIVE) TO STABILIZE IN PLACE. ONCE EVERY 10 YEARS, UPDATE BASELINE SURVEY.
- 13. WHERE RIPRAP IS PLACED, VERIFY RIPRAP IS PROPERLY MAINTAINED IN LOCATION AND POSITION. ICE BUILD-UP AND MOVEMENTS CAN SHIFT THE RIPRAP OVER SEVERAL SEASONS. RELOCATING THE RIPRAP OR ADDING NEW RIPRAP SHOULD BE EXPECTED FOR THE MOST EXPOSED AREAS.
- 14. DO NOT DREDGE WITHOUT AN APPROVED DREDGING PLAN BY AN ENGINEER. SEAWALLS ARE DESIGNED FOR A MINIMUM EMBEDMENT AND REMOVAL OF MATERIAL BELOW THE DREDGE LINE CAN CAUSE THE WALL TO FAIL.

BERM/LAWN MAINTENANCE

BERMS SHALL BE INSPECTED AND MAINTAINED AS DETAILED HEREIN, AND AS OUTLINED IN THE "LEVEE OWNER'S MANUAL FOR NON-FEDERAL FLOOD CONTROL WORKS- THE REHABILITATION AND INSPECTION PROGRAM PUBLIC LAW-84-99" BY THE US ARMY CORPS OF ENGINEERS, DATED MARCH 2006. CONSIDER A DEVELOPMENT RIDER FOR AFFECTED PROPERTIES SUCH THAT FLOOD CONTROL BERMS ARE PROPERLY PROTECTED AND ARE REPAIRED OR REPLACED IF DAMAGED DURING CONSTRUCTION OPERATIONS.

CONSTRUCTION

- 1. NEW FILL PLACED ON LEVEES/PLACED FOR CONSTRUCTION OF FLOOD CONTROL BERMS SHALL CONSIST OF CLEAN CLAY SOILS MEETING USCS CLASSIFICATION "CL". CLAYS IMPORTED TO THE SITE SHALL BE ANALYZED FOR IMPAC OF 3 INCHES IN DIAMETER. CORE MATERIAL SHALL HAVE AN ORGANIC CONTENT NOT EXCEEDING 3 PERCENT. THE MAXIMUM ORGANIC CONTENT DOES NOT APPLY TO TOPSOIL DRESSING.
- 2. PLACE FILL IN UNIFORM LAYERS NOT EXCEEDING 9 INCHES IN LOOSE THICKNESS AND COMPACT WITH A SHEEPSFOOT ROLLER. COMPACT TO A MINIMUM OF 92% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR METHOD.

LANDSCAPING AND VEGETATION

- 1. A VEGETATION FREE ZONE MUST BE MAINTAINED AS OUTLINED IN THE US ARMY CORPS OF ENGINEERS PUBLICATION "EM 1110-2-301". VEGETATION ON FLOOD CONTROL STRUCTURES SHALL BE LIMITED TO GRASS COVER.
- 2. PROPERLY MAINTAIN GRASS COVER. PERIODICALLY MOW LEVEES. UNMAINTAINED/LONG GRASS CAN PROMOTE BRUSH OR SAPLING GROWTH, AND HIDE EVIDENCE OF ANIMAL ACTIVITY, CRACKING, OR LOCALIZED SLOUGHING. MAINTAIN A MINIMUM HEIGHT OF 3 INCHES, BUT NO MORE THAN 12 INCHES.
- 3. MAINTAIN (I.E., CUT) LAWN AREAS ALONG THE INBOARD SIDE OF THE WALLS. ESTABLISH GROUND SURFACE ELEVATIONS 3. CONTROL TREES, BRUSH, AND WEEDS. REMOVE SCRUB AND TREES WITH STEM/TRUNK DIAMETERS AT MATURITY OF 2 INCHES OR GREATER, INCLUDING ROOT BALLS. INFILL RESULTING VOIDS WITH LOW-PERMEABILITY FILL, SUCH AS CLAY, AND TOP WITH TOPSOIL AND SEED OR SOD TO PREVENT EROSION
 - 4. FENCING SHALL NOT PENETRATE FLOOD CONTROL STRUCTURES.

REVIEW AND MAINTENANCE

- 1. REGULARLY REVIEW AND MAINTAIN LEVEES AND BERMS. ASSIGN PERIODIC REVIEWS TO A RESPONSIBLE PARTY, SUCH AS A PARK MANAGER, URBAN FORESTER, OR OTHER KNOWLEDGEABLE STAFF. A THOROUGH REVIEW BY AN ENGINEER SHALL BE CONDUCTED EVERY 3 YEARS.
- 2. PROMPTLY REPAIR AREAS DAMAGED BY EROSION INCLUDING GULLIES, SLOUGHS, AND SLOPE FAILURES. IF EROSION IS REGULARLY OBSERVED, PLACE SLOPE ARMOR.
- 3. REVIEW FLOOD CONTROL STRUCTURES FOR ENCROACHMENT BY PARK PLANTINGS, OPERATIONS, OR ADJACENT LANDOWNERS.
- REMOVE DEBRIS AND FLOOD-DEPOSITED MATERIALS FROM OUTBOARD FACES OF FLOOD CONTROL STRUCTURES. DO NOT ALLOW ADJACENT PROPERTY OWNERS TO DISPOSE OF LAWN CLIPPINGS OR COMPOST ON FLOOD CONTROL STRUCTURES.
- . INSPECT BERMS AND LEVEES FOR NESTING AND BURROWING ANIMALS. MAINTAIN AN ACTIVE ANIMAL ABATEMENT PROGRAM COMPLIANT WITH STATE OF MICHIGAN REGULATIONS, SUCH AS BAITING OR TRAPPING. THOROUGHLY EXCAVATE AND BACKILL BURROWS WITH COMPACTED CLAY FILL OR INFILL WITH GROUT. PREVENT BEAVER ACTIVITY, AS DAMS CAN INCREASE EROSION AND RETAINED WATER CAN OVERTOP BERMS.
- 6. WHERE RIPRAP OR SLOPE ARMOR IS PLACED, MAINTAIN LATERAL EXTENT AND ALIGNMENT. REMOVE ANIMAL NESTS AND BURROWS AND WEED OR SCRUB GROWTH WITHIN SLOPE ARMOR/RIPRAP
- 7. LIMIT VEHICLE USAGE ON BERMS/LEVEES AND INFILL RUTS, DEPRESSIONS, OR OTHERWISE DAMAGED AREAS PROMPTLY. RUTS OR DAMAGED AREAS PENETRATING SOD COVER MUST BE REPAIRED BY REMOVING SOD, INFILLING WITH COMPACTED CLAY FILL, AND REPLACING SOD/TOPSOIL AND VEGETATIVE COVER.
- 8. WHERE SURFACE CRACKING IS OBSERVED, MONITOR DEVELOPMENT AND PROMPTLY REPAIR CRACKING UNRELATED TO SEASONAL SHRINK-SWELL. ENGAGE AN ENGINEER TO REVIEW FLOOD CONTROL STRUCTURES IF CRACKING OTHER THAN SHRINK-SWELL IS OBSERVED IN COMBINATION WITH EROSION AND/OR LOCALIZED SLOUGHING/SLOPE FAILURE.
- 9. UTILITY PENETRATIONS ARE PROHIBITED. UTILITIES MUST BE INSTALLED BENEATH THE BASE OF THE FLOOD CONTROL STRUCTURE. UTILITIES INSTALLED POST-CONSTRUCTION MUST BE DONE SO UNDER THE OBSERVATION OF A GEOTECHNICAL ENGINEER. AND ENGINEERED FILL MUST CONSIST OF PROPERLY COMPACTED CLAY SOIL. ACCORDINGLY, UTILITIES SUSCEPTIBLE TO CORROSION SHOULD BE INSTALLED IN NON-REACTIVE CONDUIT, AS GRANULAR ENGINEERED FILL IS PROHIBITED.
- 7. VERIFY TIEBACK AND CAP ATTACHMENTS ARE TIGHT, FLUSH/LEVEL WITH SHEETING, AND IN GOOD CONDITION. REPLACE 10. DO NOT ALLOW INBOARD INSTALLATION OF DRAINAGE. BERMS/LEVEES FOR THIS PROJECT ARE PLACED FOR CONTROL OF FLOOD EVENTS. IF PONDING OF WATER ON THE INBOARD SIDE OF THE LEVEE OCCURS, ALLOW WATER TO EVAPORATE NATURALLY. DO NOT ATTEMPT TO INSTALL DIVERSION DITCHES OR SUMPS, AS SUCH ACTIONS CAN DAMAGE THE INTEGRETIY OF THE FLOOD CONTROL STRUCTURE.
 - 11. REVIEW OUTBOARD FACES OF FLOOD CONTROL STRUCTURES FOR BOILS AFTER FLOOD EVENTS. IF BOILS ARE OBSERVED, REQUIRE AN ENGINEER REVIEW THE BERM/LEVEE TO DETERMINE IF REPAIRS OR ADDITIONAL EVALUATION IS NEEDED.
 - 12. WHERE FLOOD CONTROL STRUCTURES ARE LOCATED ALONG NAVIGABLE WATERWAYS, ENGAGE A GEOTECHNICAL ENGINEER TO VERIFY STRUCTURES WILL BE SUITABLY STABLE IF CANALS ARE DREDGED. DO NOT DREDGE OR EXTEND CANALS WITHOUT AN APPROPRIATE ENGINEERING EVALUATION

SEAWALL NOTES

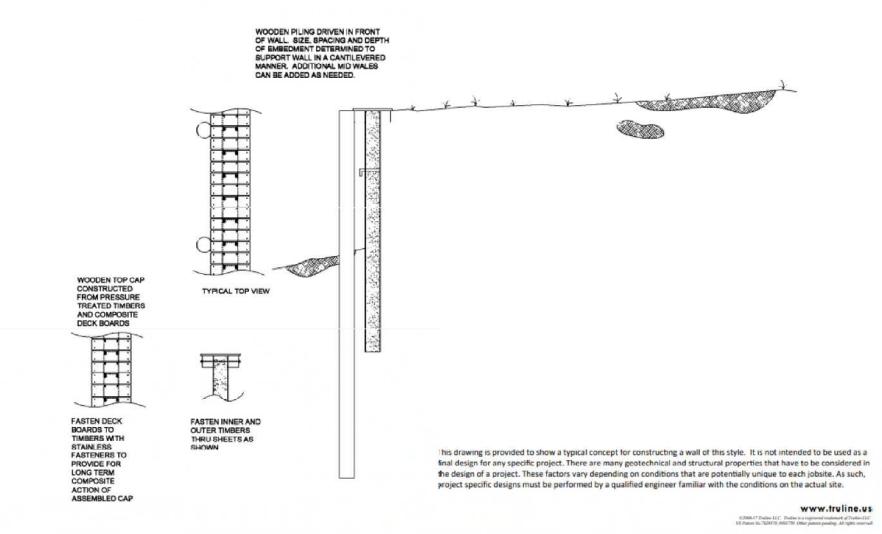
- 1. PRE-EXCAVATE RIPRAP, TREES, AND OTHER DEBRIS WITHIN THE SEAWALL ALIGNMENT PRIOR TO BEGINNING DRIVING OPERATIONS.
- 2. INSTALL NEW SEAWALLS WHERE NOTED. SEAWALLS SHALL BE HOT-ROLLED SECTION WITH MINIMUM SECTION MODULUS 17.5 IN3 PER FOOT. SHORELINE SZ20 MEETS THE MINIMUM REQUIREMENT.
- 3. SEAWALL SECTION AND EMBEDMENT ACCOUNTS FOR LONG-TERM SECTION LOSS DUE TO CORROSION. SECTIONS OTHER THAN THAT PROVIDED FOR THIS BASIS OF DESIGN WILL REQUIRE SECTION-SPECIFIC ANALYSIS TO BE PROVIDED BY CONTRACTOR AND SUBMITTED TO ENGINEER FOR REVIEW
- 4. NEW SEAWALLS SHALL BE TIED INTO ADJACENT WALLS SUCH THAT NO GAP BETWEEN THE WALLS IS PRESENT FROM THE WATER LINE TO THE TOP OF WALL, BASIS OF DESIGN DETAILS ARE PROVIDED. FIELD MANUFACTURING WILL BE REQUIRED, AND CONTRACTOR MAY PROPOSE ALTERNATES.
- 5. PILE CAP SHALL BE MINIMUM 3/6-INCH THICK STEEL CHANNEL SECTION, SIZED APPROPRIATELY TO THE SHEET PILE SECTION INSTALLED. PILE CAP SHALL BE WELDED TO BACK AND FACE EDGE OF SHEET PILE, %-INCH CONTINUOUS WELD.
- 6. WHERE EXISTING WALLS ARE IN GOOD CONDITION, REMOVE EXISTING CAPS (WHERE PRESENT), AND INSTALL CONCRETE BARRIER WALL
- 7. BACKFILL ALL SEAWALLS WITH MDOT CLASS II SAND COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR METHOD.
- 8. IN LIEU OF SAND BACKFILL, WALLS MAY BE BACKFILLED WITH MDOT 6A CRUSHED AGGREGATE
- 9. PLACE NONWOVEN GEOTEXTILE (MIRAFI 150N OR EQUIVALENT) ALONG FACE OF WALL, EXTENDING VERTICALLY ALONG BACK SIDE OF WALL, AND EXTENDING ABOVE TOP OF SAND OR AGGREGATE WALL BACKFILL, EXTENDING MINIMUM 3 FEET BEYOND INBOARD EDGE OF EXCAVATION. PLACE 12 INCHES OF TOPSOIL OVER SEPARATION FABRIC AND SEED AND MULCH PER CIVIL ENGINEER'S DETAIL.
- 10. PLACE 3 FEET MINIMUM MDOT HEAVY RIPRAP AT FACE OF SEAWALL FOR EROSION CONTROL.

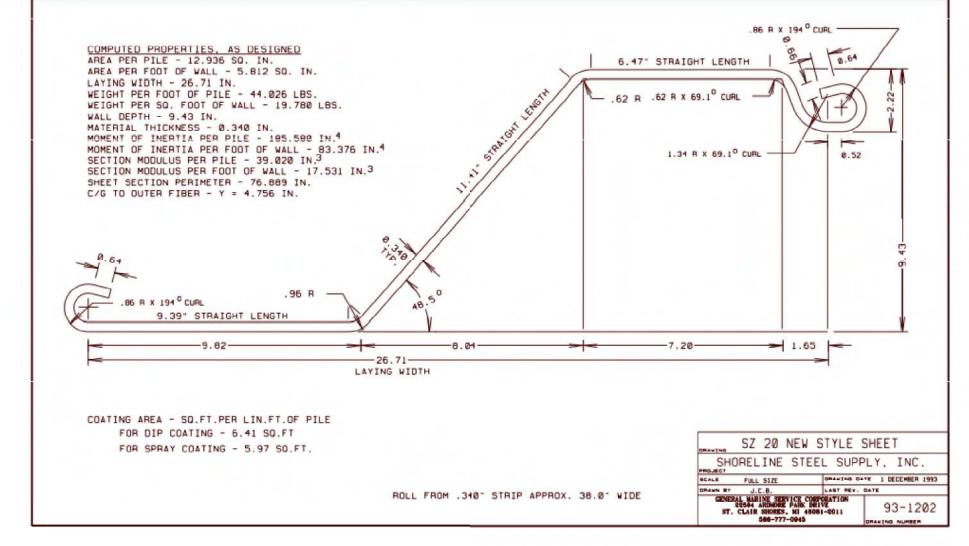
ALTERNATES

- 1. INSTALL TRULINE WALL "NAVAL" OPTION, CONCRETE CELL BACKFILL MINIMUM f'c 3,500 PSI AND MINIMUM 8" DIAMETER DOUGLAS FIR MARINE GRADE TIMBER PILES. DESIGN SHALL BE BY CONTRACTOR AND SHALL BE SUBMITTED FOR ENGINEER'S REVIEW.
- 2. IN LIEU OF CONCRETE BARRIER WALL, REMOVE EXISTING PILE CAPS AND INSTALL STEEL EXTENSION. EXTENSIONS TO BE DESIGNED BY CONTRACTOR AND SUBMITTED FOR APPROVAL TO ENGINEER. SEE STEEL BARRIER DETAIL FOR BASIS OF DESIGN.
- 3. CONTRACTOR TO PROVIDE FIELD ATTACHMENT DETAILS TO ENGINEER FOR APPROVAL



Drawing 112 navy style installation







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Orientation NONE

CITY OF DETROIT FLOOD **MEASURES**

roject Location

DETROIT, MICHIGAN

SHEETPILE AND BERM NOTES



08/18/23 LMJ

07/21/23

091506.00 Project Manager:

L. JOHNSON

L.JOHNSON

CADD:

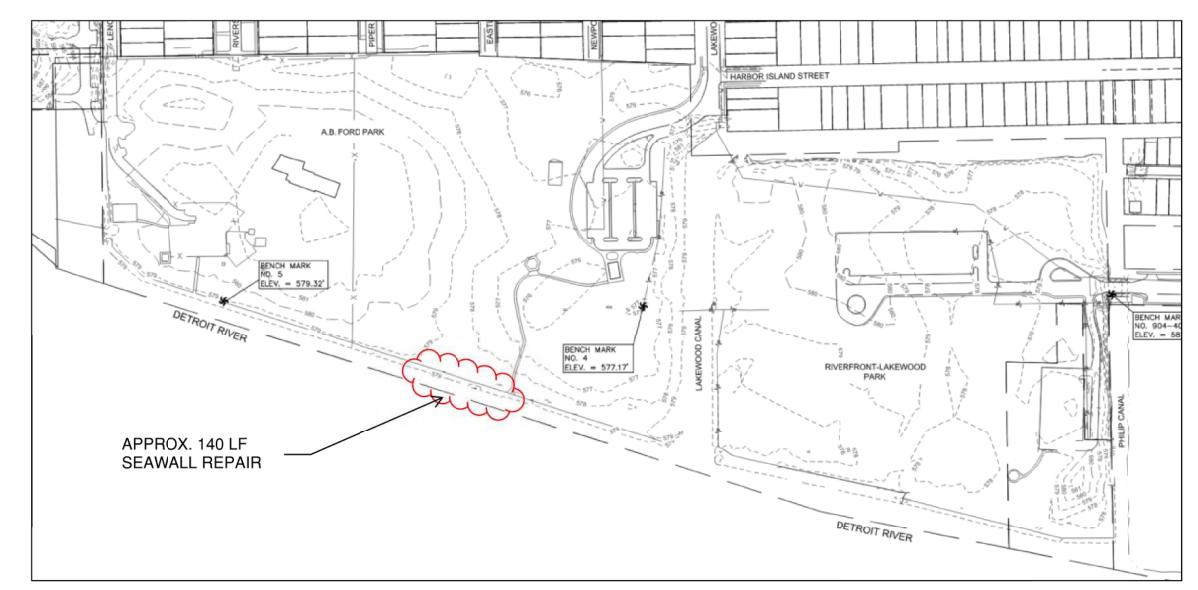
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RAWING NOTE: SCALE DEPICTED IS MEANT FOR 24" 36" AND WILL SCALE INCORRECTLY IF PRINTED ON ANY OTHER SIZE MEDIA IO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR

CP-14











www.sme-usa.com Orientation NONE

CITY OF DETROIT FLOOD **MEASURES**

Project Location

DETROIT. MICHIGAN

SHEETPILE DETAILS- AB FORD PARK

07/21/23 SME Project No. 091506.00

Project Manager: L. JOHNSON

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CP-15

PHOTO 1: SEPARATION AT PILE CAP JOIN

PHOTO 2: LOOKING WEST ALONG SEAWALL

PHOTO 3: SIDEWALK SUBSIDENCE AND OUTWARD ROTATION OF PHOTO 4: TERMINAL END OF EASTERNMOST TIEBACK- ANGLE MAY BE A SEAWALL TURNBUCKLE, BUT NO ROD WAS OBSERVED BEYOND 15' OFF BACK FACE OF SEAWALL, ROD ABOUT 5 FEET BELOW TOP OF SEAWALL.

BASED ON OBSERVATIONS, SEAWALL APPEARS TO BE PZ22 SHEET PILING. REPAIR DESIGN IS BASED ON DESIGN PLANS PREPARED BY SME FOR OTHER PORTIONS OF THE SEAWALL ALONG THE CITY OF DETROIT RIVERWALK AND A PREVIOUS REPAIR AT ALFRED BRUSH FORD PARK.

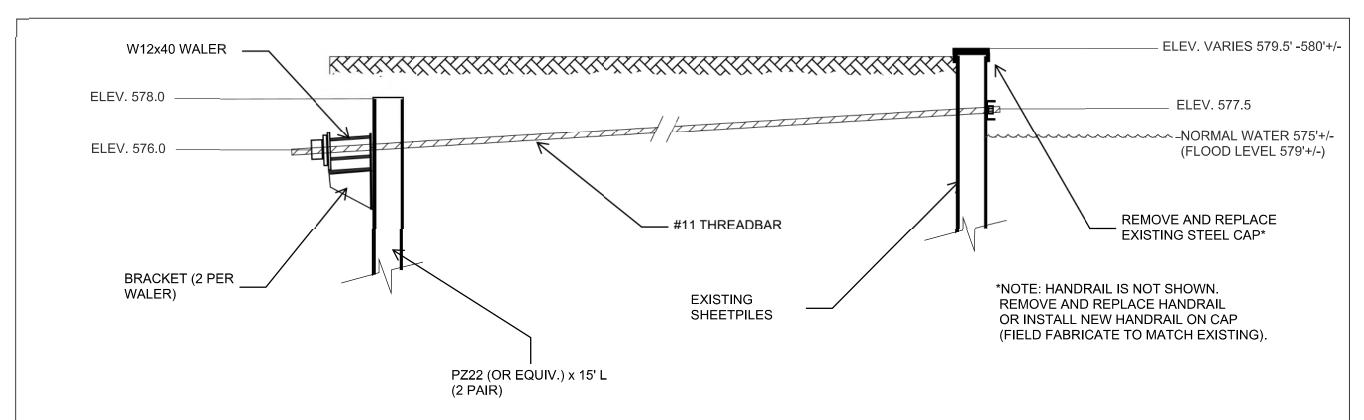


FIGURE 4: PROFILE CONNECTION DETAILS

FIGURE 1: SEAWALLS AT ALFRED BRUSH FORD PARK

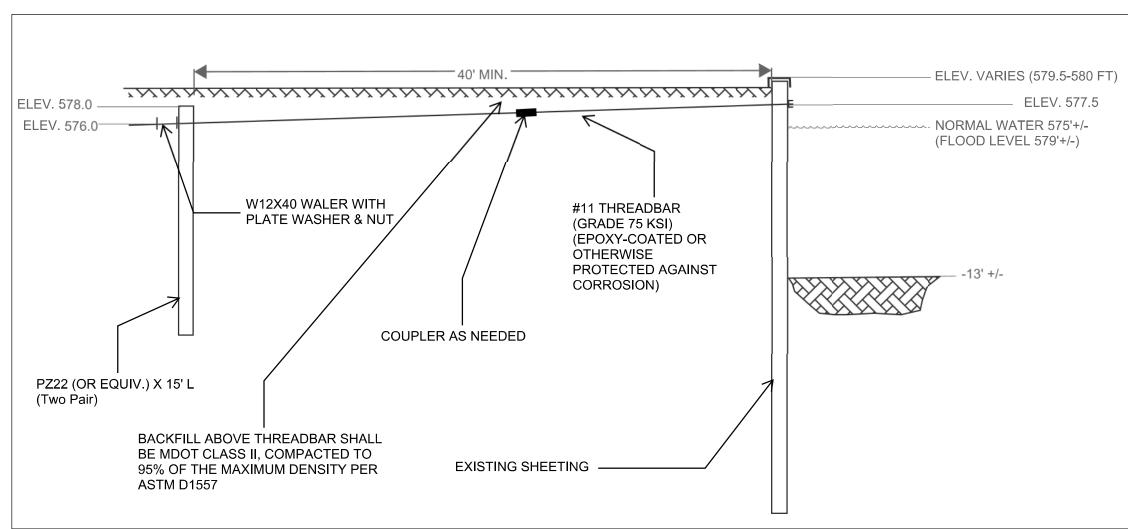


FIGURE 2: CROSS SECTION - SEAWALL REPAIR

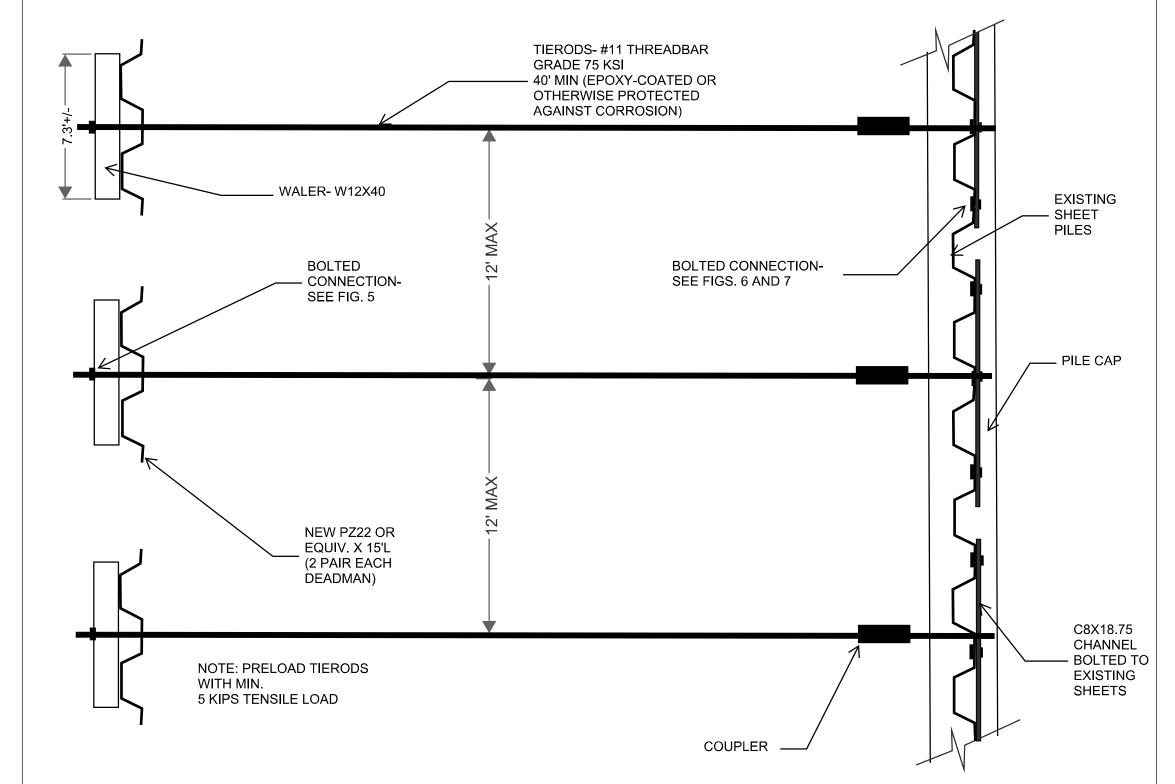


FIGURE 3: PLAN - SEAWALL REPAIR

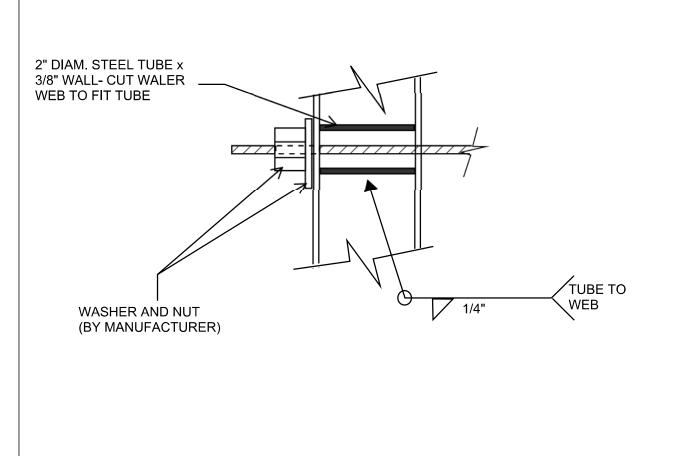


FIGURE 5: PLAN - WALER/TIE CONNECTION

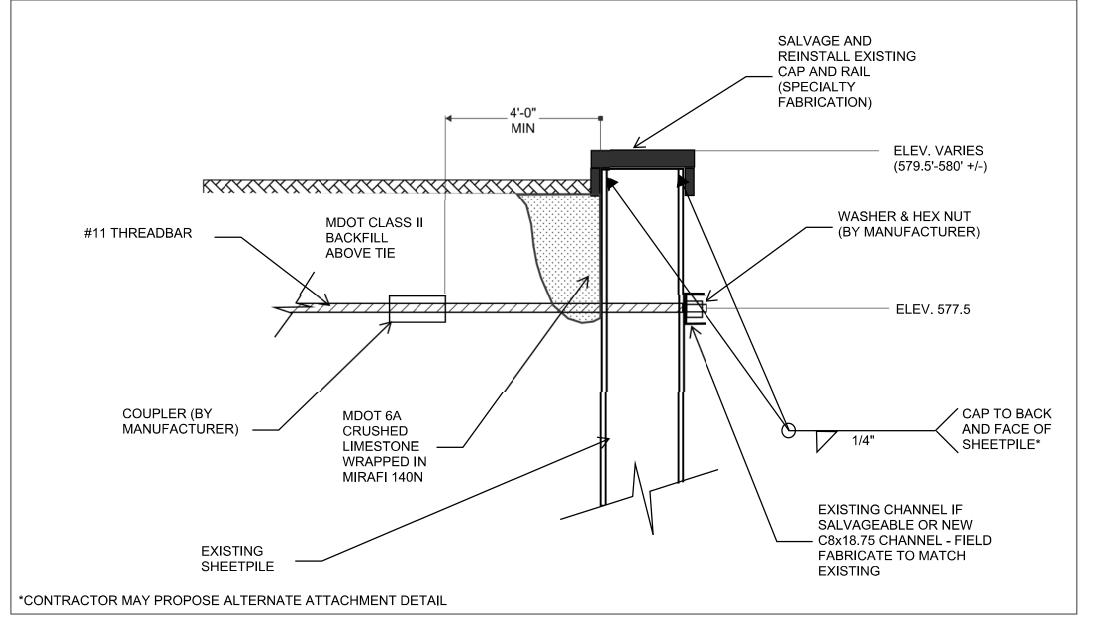


FIGURE 6: SECTION - SHEETPILE/TIE CONNECTION

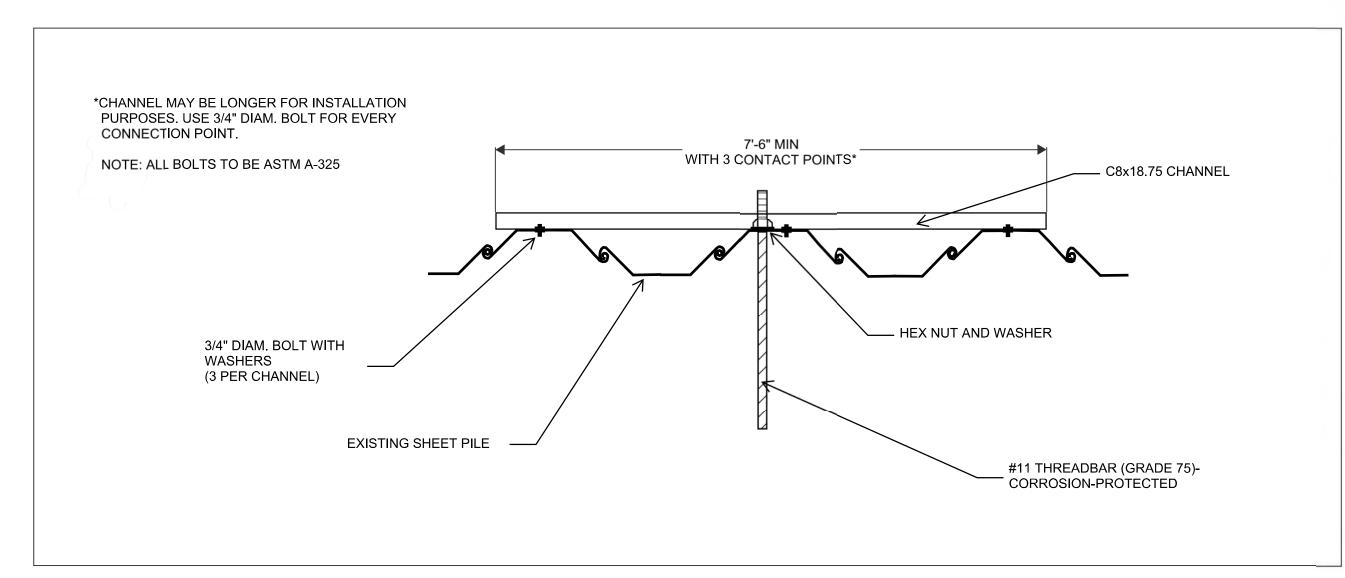


FIGURE 7: PLAN - SHEETPILE/TIE CONNECTION



PHOTO 1: DETERIORATED ASPHALT, GRADE SLOPES TOWARD WALL



PHOTO 4: TREES HAVE RESULTED IN DAMAGE TO WALL



PHOTO 2: TREES BEHIND NORTH SEAWALL

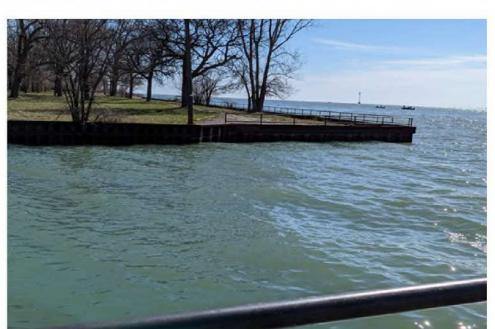


PHOTO 5: TREES BEHIND WALLS HAVE DAMAGED WALLS

PHOTO 7: SCRUB AND ROOTS GROWING THROUGH WALLS, TIES EXPOSED

PHOTO 9: DETERIORATED ASPHALT, GRADE SLOPES TOWARD WALL

PHOTO 11: DETERIORATED ASPHALT, GRADE SLOPES TOWARD WALL,

PHOTO 13: "SAGS' IN SIDEWALKS, SIDEWALKS SLOPE TOWARD WALLS,

DAMAGED CAP

SIDEWALKS NOT MAINTAINED





PHOTO 6: BROKEN TIES & EROSION BEHIND WALLS



PHOTO 8: LARGE TREES CLOSE TO WALLS, DETERIORATED ASPHALT,

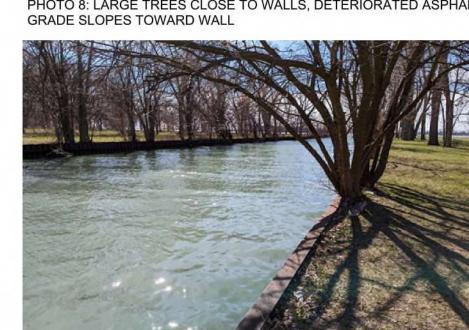


PHOTO 10: TREES BEHIND WALLS ARE DAMAGING WALLS



PHOTO 14: SIDEWALKS HAVE NOT BEEN MAINTAINED. NOTE SETTLEMENT, UNEVEN SLABS, SCRUB IN JOINTS









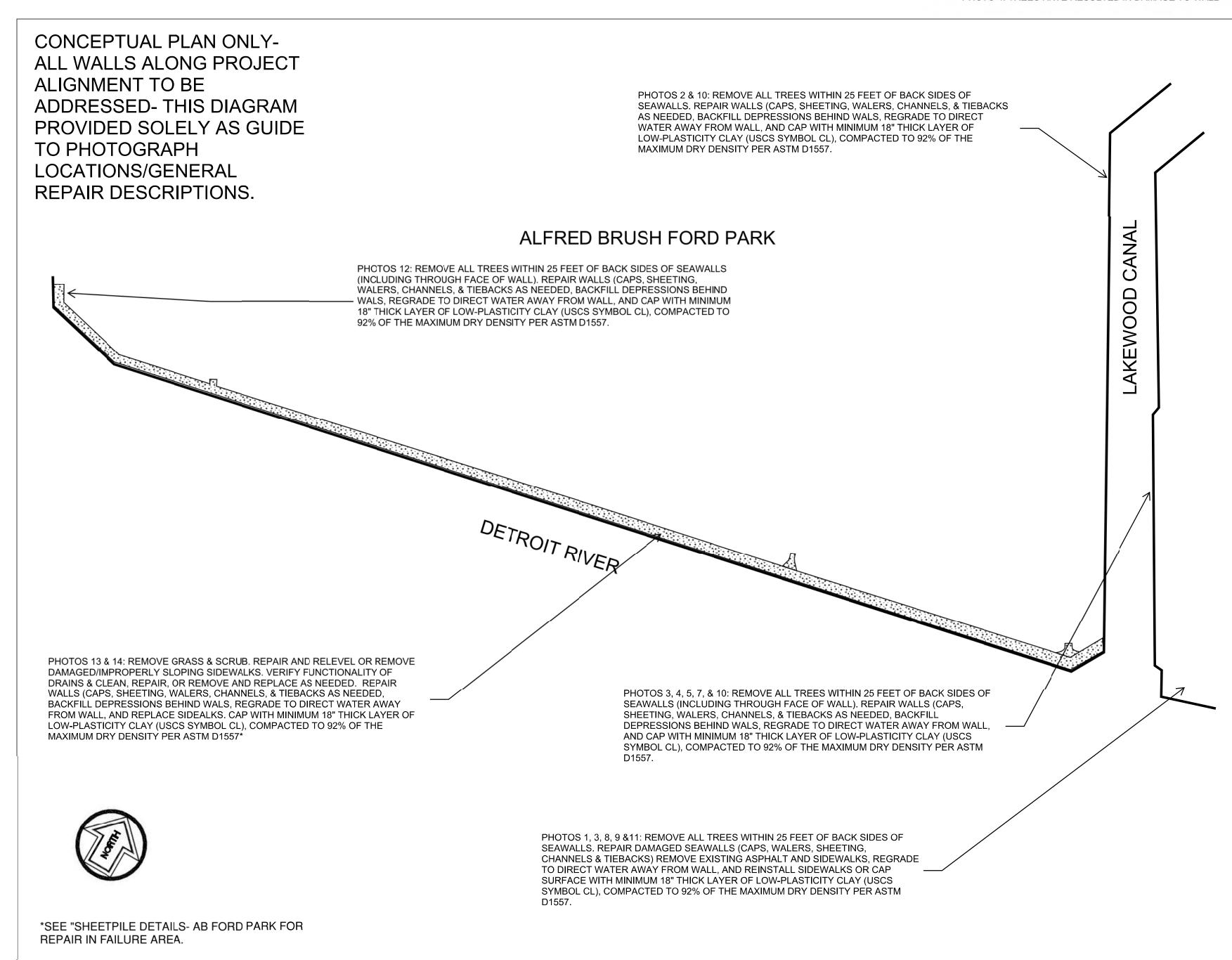


FIGURE 8: ALFRED BRUSH FORD PARK WALL MAINTENANCE

PHOTO 12: TREES & EROSION BEHIND WALL

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NONE

CITY OF DETROIT FLOOD MEASURES

Project Location

DETROIT, MICHIGAN

SHEETPILE DETAILS- AB FORD PARK AND GENERAL WALL MAINTENANCE

Engineer's Seal

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