

**BOARDWALK RENOVATIONS
HADWEN PARK
19 HEARD STREET
WORCESTER, MASSACHUSETTS
(Worcester County)**

April 3, 2023 - Issued for Bidding



SHEET INDEX

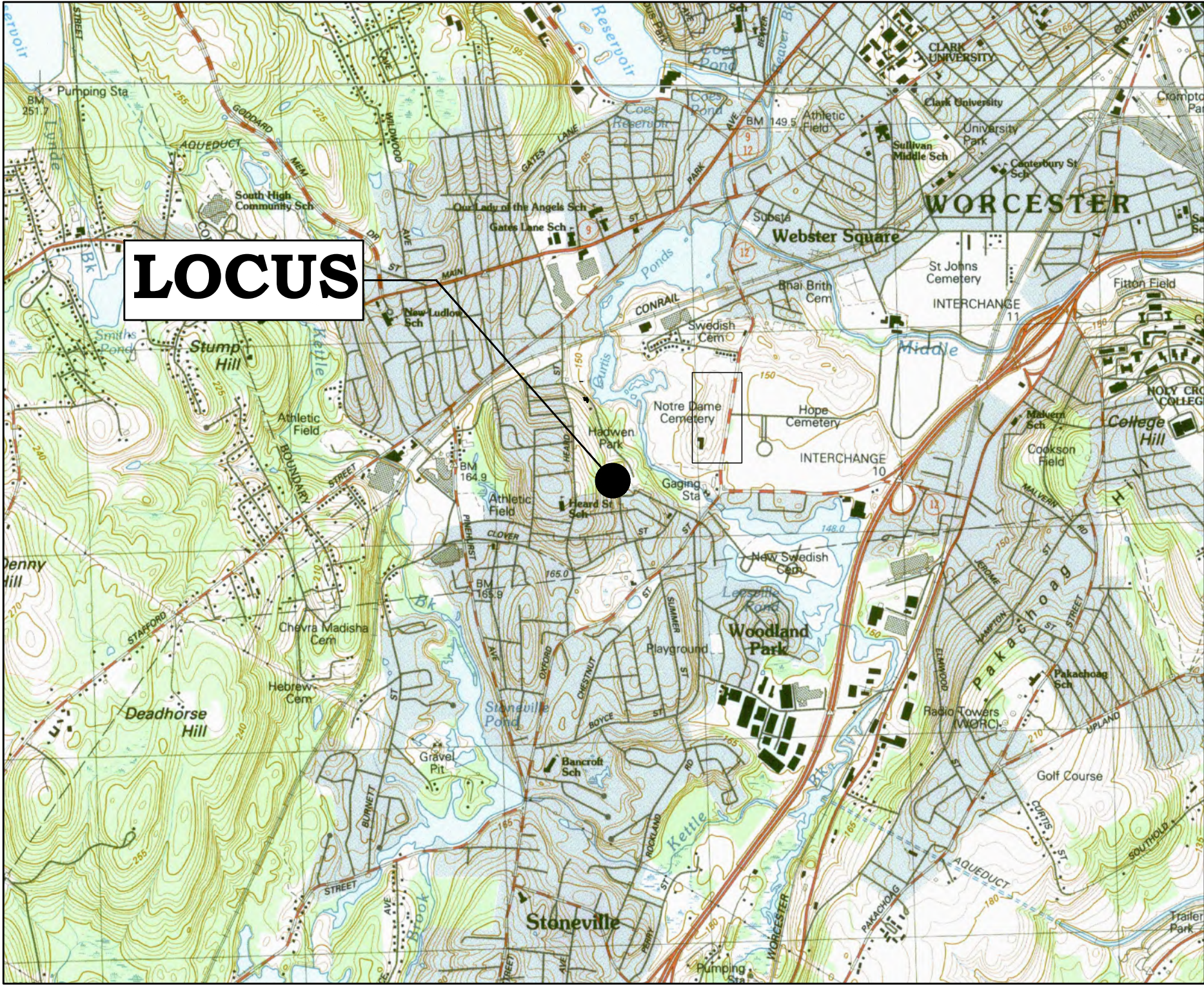
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**LAND SURVEYOR AND
LANDSCAPE ARCHITECT**

Beals and Thomas, Inc.
144 Turnpike Road
Southborough, Massachusetts 01772

STRUCTURAL ENGINEER

Gill Engineering, Inc.
63 Kendrick Street
Needham, Massachusetts 02494



Locus Map
Scale: 1" = 2000'



Eric D. Batista
City Manager

Jay J. Fink, P.E.
Commissioner
Department of Public Works & Parks

Robert C. Antonelli, Jr.
Assistant Commissioner
Department of Public Works & Parks

Job No.: 2921.06
Plan No.: 292106P016A-001

GENERAL NOTES

THE CONTRACTOR SHALL MAKE ALL NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS. THE CONTRACTOR SHALL ALSO PAY ALL FEES AND POST ALL BONDS ASSOCIATED WITH THE SAME, AND COORDINATE WITH THE ENGINEER AND ARCHITECT AS REQUIRED.

CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY AND ALL CONSTRUCTION MEANS AND METHODS.

LIMIT OF WORK SHALL BE SEDIMENT CONTROL BARRIERS, LIMIT OF GRADING, SITE PROPERTY LINES AND/OR AS INDICATED ON DRAWINGS.

PORTIONS OF THE ROADWAY, SIDEWALK AND ROADSIDE AREA DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED TO THEIR CONDITIONS PRIOR TO DISTURBANCE.

CONTRACTOR TO VERIFY UTILITY STUB LOCATIONS AND ELEVATIONS IN THE FIELD PRIOR TO COMMENCING WORK.

ANY ALTERATION TO THESE DRAWINGS MADE IN THE FIELD DURING CONSTRUCTION SHALL BE RECORDED BY THE CONTRACTOR ON RECORD DOCUMENTS.

ANY AREA OUTSIDE THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO OWNER.

EXISTING TREES AND SHRUBS OUTSIDE THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON PRIOR APPROVAL OF THE OWNER.

FOR DRAWING LEGIBILITY, ALL EXISTING TOPOGRAPHIC FEATURES, EXISTING UTILITIES, PROPERTY BOUNDARIES, EASEMENTS, ETC. MAY NOT BE SHOWN ON ALL DRAWINGS. REFER TO ALL REFERENCED DRAWINGS AND OTHER DRAWINGS IN THIS SET FOR ADDITIONAL INFORMATION.

NEW EXCAVATION AND TRENCH SAFETY REGULATIONS ARE IN EFFECT AS OF MARCH 1, 2015. (REFER TO 520 CMR 14.00) ALL EXCAVATORS OR CONTRACTORS MUST OBTAIN A TRENCH PERMIT PRIOR TO ANY CONSTRUCTION RELATED TRENCHES ON SITE.

LAYOUT AND MATERIALS NOTES

ALL LINES AND DIMENSIONS ARE PARALLEL OR PERPENDICULAR TO THE LINES FROM WHICH THEY ARE MEASURED UNLESS OTHERWISE INDICATED.

CONTRACTOR SHALL VERIFY ALL CONDITIONS IN THE FIELD AND REPORT SIGNIFICANT CONFLICTS OR DISCREPANCIES TO THE OWNER AND THE ENGINEER FOR RESOLUTION.

DIMENSIONS OF PARKING SPACES AND DRIVEWAYS ARE FROM FACE OF CURB TO FACE OF CURB.

THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN SITE PLAN DIMENSIONS AND BUILDING PLANS BEFORE PROCEEDING WITH ANY PORTION OF SITE WORK WHICH MAY BE AFFECTED SO THAT PROPER ADJUSTMENTS TO THE SITE LAYOUT CAN BE MADE IF NECESSARY.

ACCESSIBLE RAMPS SHALL BE PER MASSACHUSETTS STATE CODE AND THE AMERICANS WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES (WHICHEVER IS MORE STRINGENT).

PROTECT EXISTING PROPERTY MONUMENTS AND ABUTTING PROPERTIES DURING CONSTRUCTION ACTIVITIES.

GRADING, DRAINAGE AND UTILITY NOTES

UNDERGROUND UTILITIES WERE COMPILED FROM AVAILABLE RECORD PLANS OF UTILITY COMPANIES AND PUBLIC AGENCIES, ARE APPROXIMATE AND ASSUMED. BEFORE COMMENCING SITE WORK IN ANY AREA, CONTACT "DIG SAFE" AT 1-888-344-7233 TO ACCURATELY LOCATE UNDERGROUND UTILITIES. ANY DAMAGE TO EXISTING UTILITIES OR STRUCTURES SHALL BE THE CONTRACTOR'S RESPONSIBILITY. NO EXCAVATION SHALL BE DONE UNTIL UTILITY COMPANIES ARE PROPERLY NOTIFIED IN ADVANCE.

ALL SITE WORK SHALL MEET OR EXCEED THE SITE WORK SPECIFICATIONS DATED XX/XX/XX PREPARED FOR THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER PRIOR TO INSTALLATION OF ANY PORTION OF THE SITE WORK WHICH WOULD BE AFFECTED.

ALL WORK PERFORMED AND ALL MATERIALS FURNISHED SHALL CONFORM WITH THE LINES, GRADES AND OTHER SPECIFIC REQUIREMENTS OR SPECIFICATIONS OF THE CITY OF WORCESTER DPW.

AT ALL LOCATIONS WHERE EXISTING CURBING OR PAVEMENT ABUTS NEW CONSTRUCTION, THE EDGE OF THE EXISTING CURB OR PAVEMENT SHALL BE SAW CUT TO A CLEAN, SMOOTH EDGE. BLEND NEW PAVEMENT, CURBS AND EARTHWORK SMOOTHLY INTO EXISTING BY MATCHING LINES, GRADES AND JOINTS. PITCH EVENLY BETWEEN SPOT GRADES. GRADE ALL AREAS TO DRAIN.

THE CONTRACTOR SHALL VERIFY EXISTING GRADES IN THE FIELD AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES, AS REQUIRED. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE OWNER AND ENGINEER FOR RESOLUTION.

A SEDIMENT CONTROL BARRIER SHALL BE INSTALLED ALONG THE EDGE OF PROPOSED DEVELOPMENT AS SHOWN ON THE PLAN PRIOR TO THE COMMENCEMENT OF CONSTRUCTION OPERATIONS.

CONTRACTOR SHALL PROTECT ALL UNDERGROUND DRAINAGE, SEWER AND UTILITY FACILITIES FROM EXCESSIVE VEHICULAR LOADS DURING CONSTRUCTION. ANY DAMAGE TO THESE FACILITIES RESULTING FROM CONSTRUCTION LOADS WILL BE RESTORED TO ORIGINAL CONDITION.

THE CONTRACTOR SHALL REMOVE ALL SEDIMENT CONTROL BARRIERS AFTER RE-VEGETATION OF DISTURBED AREAS AND AFTER APPROVAL OF THE CONSERVATION COMMISSION AND WETLAND SPECIALIST.

EXCAVATION REQUIRED WITHIN THE PROXIMITY OF EXISTING UTILITY LINES SHALL BE DONE BY HAND. CONTRACTOR SHALL REPAIR ANY DAMAGE TO EXISTING UTILITY LINES OR STRUCTURES INCURRED DURING CONSTRUCTION OPERATIONS AT NO COST TO THE OWNER.

STOCKPILED TOPSOIL SHALL BE PLACED NEATLY IN AN AREA INDICATED BY THE OWNER.

PITCH EVENLY BETWEEN SPOT GRADES. ALL PAVED AREAS MUST PITCH TO DRAIN AT A MINIMUM OF 1/8" PER FOOT UNLESS SPECIFIED. ANY DISCREPANCIES NOT ALLOWING THIS MINIMUM PITCH SHALL BE REPORTED TO THE ENGINEER PRIOR TO CONTINUING WORK.

THE CONTRACTOR SHALL SCHEDULE HIS WORK TO ALLOW THE FINISHED SUBGRADE ELEVATIONS TO DRAIN PROPERLY WITHOUT PUDDLING. SPECIFICALLY, ALLOW WATER TO ESCAPE WHERE PROPOSED CURB MAY RETAIN RUNOFF PRIOR TO APPLICATION OF THE FINISH SUBGRADE AND/OR SURFACE PAVING. PROVIDE TEMPORARY POSITIVE DRAINAGE AS REQUIRED.

UNLESS OTHERWISE INDICATED, ABANDONED EXISTING UTILITY LINES SHALL BE CAPPED AND ABANDONED IN PLACE UNLESS THEY CONFLICT WITH PROPOSED IMPROVEMENTS. CAP REMAINING PORTIONS WHERE PARTIALLY REMOVED.

EROSION AND SEDIMENT CONTROL NOTES

A SEDIMENT CONTROL BARRIER SHALL BE INSTALLED ALONG THE EDGE OF PROPOSED DEVELOPMENT AS INDICATED IN THE PLAN PRIOR TO THE COMMENCEMENT OF DEMOLITION OR CONSTRUCTION OPERATIONS.

CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES DURING ENTIRE CONSTRUCTION PERIOD.

ANY SEDIMENT TRACKED ONTO PUBLIC RIGHT-OF-WAYS SHALL BE SWEEPED AT THE END OF EACH WORKING DAY.

ALL STOCKPILE AREAS SHALL BE LOCATED WITHIN LIMIT OF WORK LINE AND STABILIZED TO PREVENT EROSION.

ALL DEBRIS GENERATED DURING SITE PREPARATION ACTIVITIES SHALL BE LEGALLY DISPOSED OF OFF SITE.

PROVIDE CRIBBING AS NECESSARY TO PROTECT EXISTING UTILITY LINES DURING CONSTRUCTION.

SITE ELEMENTS TO REMAIN MUST BE PROTECTED FOR DURATION OF PROJECT.

ALL TOPSOIL ENCOUNTERED WITHIN WORK AREA SHALL BE STRIPPED TO ITS FULL DEPTH AND STOCKPILED FOR REUSE. EXCESS TOPSOIL SHALL BE DISPOSED OF ON SITE AS DIRECTED BY OWNER. TOPSOIL PILES SHALL REMAIN SEGREGATED FROM EXCAVATED SUBSURFACE SOIL MATERIALS.

ADDITIONAL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AS CONDITIONS WARRANT OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.

ALL POINTS OF CONSTRUCTION EGRESS OR INGRESS SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADS.

ALL AREAS IDENTIFIED AS CRITICAL AREA SEEDING SHALL BE STABILIZED DURING CONSTRUCTION BY SEEDING WITH ANNUAL RYE GRASS AT THE RATE OF FORTY (40) LBS/ACRE.

TEMPORARY DIVERSION DITCHES, PERMANENT DITCHES, CHANNELS, EMBANKMENTS AND ANY DENIED SURFACE WHICH WILL BE EXPOSED FOR A PERIOD OF ONE MONTH OR MORE SHALL BE CONSIDERED CRITICAL VEGETATION AREAS. THESE AREAS SHALL BE MULCHED WITH STRAW. MULCH SHALL BE SPREAD UNIFORMLY IN A CONTINUOUS BLANKET OF SUFFICIENT THICKNESS TO COMPLETELY HIDE THE SOIL FROM VIEW.

SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED ON A DAILY BASIS DURING CONSTRUCTION TO INSURE THAT CHANNELS, DITCHES AND PIPES ARE CLEAR OF DEBRIS AND THAT THE EROSION CONTROL BARRIERS ARE INTACT.

CONTRACTOR SHALL PROVIDE DUST CONTROL FOR CONSTRUCTION OPERATIONS AS APPROVED BY OWNER.

DUST SHALL BE CONTROLLED BY SPRINKLING OR OTHER APPROVED METHODS AS NECESSARY, OR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE.

STRAW BALE CHECK DAMS SHALL BE PROVIDED AROUND ALL EXISTING DRAIN INLETS PRIOR TO CONSTRUCTION ACTIVITIES AND AROUND ALL PROPOSED DRAIN INLETS PRIOR TO PERMANENT PAVEMENT TO CONTROL SILTATION.

EXTREME CARE SHALL BE EXERCISED SO AS TO PREVENT ANY UNSUITABLE MATERIAL FROM ENTERING THE WETLANDS.

ADDITIONAL STRAW BALES SHALL BE LOCATED AS CONDITIONS WARRANT OR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE.

CLEAN AND MAINTAIN SEDIMENT CONTROL BARRIERS AS REQUIRED DURING CONSTRUCTION OPERATIONS TO ENSURE ITS CONTINUED FUNCTIONALITY.

NOTES

- 1) UNDERGROUND UTILITIES SHOWN ARE FROM OBSERVED SURFACE AND SUBSURFACE INDICATIONS AND ARE APPROXIMATE ONLY. BEFORE CONSTRUCTION CALL "DIG SAFE" 1-888-344-7233.
- 2) THIS PLAN WAS PREPARED FROM AN ACTUAL SURVEY MADE ON THE GROUND USING TOTAL STATION METHODS ON OR BETWEEN JULY 14 AND OCTOBER 13, 2017.
- 3) TOPOGRAPHIC LIDAR INFORMATION TAKEN FROM NOAA DIGITAL COAST DATA VIEWER DATA SET ENTITLED "NEW ENGLAND CHMP SANDY LIDAR". THIS DATA WAS TESTED TO MEET ASPRS POSITIONAL ACCURACY STANDARDS FOR DIGITAL GEOSPATIAL DATA (2014) FOR A 18.13 cm (0.599') RMSE2 VERTICAL ACCURACY CLASS. ACTUAL NVIA ACCURACY WAS FOUND TO BE RMSE2 6.173 cm (0.203') EQUATING TO +/- 12.1 cm (0.397') AT 95% CONFIDENCE LEVEL. ACTUAL NVIA ACCURACY WAS FOUND TO BE +/- 11.6 cm (0.381') AT THE 95 PERCENTILE.
- 4) WETLAND RESOURCE AREAS SHOWN DELINEATED BY BEALS AND THOMAS, INC. ON AUGUST 01, 2017.
- 5) WETLAND RESOURCE AREA FLAGS LOCATED BY TOTAL STATION METHODS BY BEALS AND THOMAS, INC. ON OR BETWEEN JULY 14 AND OCTOBER 13, 2017.
- 6) ALL ELEVATIONS REFER TO THE CITY OF WORCESTER SEWER DATUM.
- 7) NAD83 HORIZONTAL COORDINATE SYSTEM ESTABLISHED BY GPS-VRS METHODS, NAD_83(2011)(EPOCH2010).
- 8) PORTIONS OF THE PARCEL SHOWN ARE LOCATED IN ZONE AE (SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD; BASE FLOOD ELEVATIONS DETERMINED), ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), ZONE X* (AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD), AS SHOWN ON "FLOOD INSURANCE RATE MAP, WORCESTER COUNTY, MASSACHUSETTS (ALL JURISDICTIONS) PANEL 902 OF 1075", MAP NUMBER 25027008092, EFFECTIVE DATE JULY 4, 2011.
- 9) BOUNDARY AND EASEMENT SHOWN ON UNRECORDED PLAN PROVIDED BY CITY OF WORCESTER DEPARTMENT OF PUBLIC WORKS AND PARKS ENTITLED "CITY MANAGER'S OFFICE OF PLANNING AND COMMUNITY DEVELOPMENT, WORCESTER MASS, HADWEN PARK" DATED NOVEMBER 1975 BY RENEY BROTHERS INC

LEGEND

LOCUS PROPERTY LINE
SEWER LINE/MANHOLE
DRAIN LINE/MANHOLE
CATCH BASIN
FLARED END/INVERT
GAS LINE/GATE
WATER LINE/GATE
HYDRANT
POST INDICATOR VALVE
TELEPHONE LINE/MANHOLE
ELECTRIC LINE/MANHOLE
OVERHEAD WIRE
LIGHT POLE
LIGHT POLE
UTILITY POLE
UTILITY POLE w/LIGHT
UTILITY POLE w/RISER
UTILITY POLE w/TRANSFORMER
GUY WIRE
CHAIN LINK FENCE
WOOD FENCE
GUARDRAIL/GUIDERAIL
VERTICAL GRANITE CURB
BITUMINOUS CONCRETE BERM
TREE LINE
STONE WALL
RIPRAP

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100' BUFFER ZONE
MINOR CONTOUR
MAJOR CONTOUR
SPOT ELEVATION
EDGE OF WATER
BOUNDARY OF BORDERING VEGETATED WETLAND
100-YEAR FLOOD ELEVATION
BITUMINOUS CONCRETE
BENCHMARK
CONCRETE
CORRUGATED METAL PIPE
DOOR
ELECTRIC METER
EDGE OF PAVEMENT
GAS METER
HEAD WALL
POLYVINYL CHLORIDE
REINFORCED CONCRETE PIPE
SIGN
POST
BOLLARD POST
HAND HOLE
TREE
NO. OF PARKING SPACES IN ROW
STONE BOUND
CONCRETE BOUND
DRILL HOLE
IRON PIN/IRON PIPE
IRON ROD
FOUND
DISTANCE (BY RECORD)
DISTANCE (BY SURVEY)
ASSESSOR'S MAP AND PARCEL NUMBER

CONSTRUCTION SEQUENCE NOTES:

1. THE CONSTRUCTION SEQUENCE REQUIREMENTS FOR WORK CONDUCTED IN THE WETLAND RESOURCE AREAS AND THE ASSOCIATED BUFFER ZONES SHALL BE USED BY THE CONTRACTOR TO FORM A COMPLETE SCHEDULE FOR THE PROJECT, WHICH SHALL BE COORDINATED WITH THE OWNER, WORCESTER CONSERVATION COMMISSION AND ENGINEER. BEFORE PERFORMING ANY WORK AT THE SITE, THE CONTRACTOR SHALL SUBMIT A DETAILED PLAN TO THE WORCESTER CONSERVATION COMMISSION AND ENGINEER FOR REVIEW. THIS PLAN SHALL DESCRIBE THE PROPOSED SEQUENCE, METHODS, AND TIMING OF THE WORK TO BE PERFORMED ON THE SITE.
 - A. NOTIFY CITY OF WORCESTER CONSERVATION AGENT PRIOR TO COMMENCEMENT OF WORK.
 - B. DISPLAY DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP) PERMIT NUMBER AT CONSTRUCTION SITE.
 - C. INSTALL EROSION CONTROL BARRIERS ACCORDING TO SITE PLANS AND PERFORM WORK ACCORDING TO THE SITE PLANS:
 - PERFORM REMOVAL OF DAMAGED BOARDWALK
 - CONSTRUCT/INSTALL BOARDWALK
 - CLEAN UP SITE
 - D. BOARDWALK CONSTRUCTION SHOULD OCCUR WHEN WATER LEVELS IN THE POND ARE AT THEIR SEASON LOW.
 - E. CONSTRUCTION OF THE BOARDWALK SHOULD OCCUR WHEN VEGETATION GROWTH IS AT ITS SEASON LOW. PRIOR TO ANY WORK IN THE RESOURCE AREA, CONTRACTOR WILL HOLD A PRE-CONSTRUCTION MEETING WITH PARKS, WORCESTER CONSERVATION COMMISSION AND/OR THEIR AGENT AND THE ENGINEER TO DISCUSS PHASING, SCOPE AND LIMITATIONS.
 - F. NOTIFY CITY OF WORCESTER CONSERVATION AGENT UPON COMPLETION OF WORK
 - G. REMOVE EROSION CONTROL MEASURES UPON APPROVAL AND CERTIFICATE OF COMPLIANCE FROM CITY OF WORCESTER CONSERVATION COMMISSION.
3. CONTRACTOR IS TO STAKE LIMITS OF WORK AND ALIGNMENT OF THE PROPOSED BOARDWALK PRIOR TO THE PRE-CONSTRUCTION MEETING. DURING THE PRE-CONSTRUCTION MEETING WITH THE CONTRACTOR, PARKS AND CONSERVATION COMMISSION REPRESENTATIVES, MINOR DEVIATION MAY BE AUTHORIZED TO MINIMIZE THE REMOVAL OF MATURE TREES AND PREVENT EROSION. ADJUSTMENTS TO THE BOARDWALK CAN BE MADE AT THIS TIME TO ACCOMMODATE EXISTING VEGETATION TO THE EXTENT POSSIBLE. EXISTING VEGETATION THAT IS TO BE DISTURBED/CUT MAY BE LEFT IN PLACE OR APPROPRIATELY PLACED SO AS TO NOT IMPAIR THE BOARDWALK CONSTRUCTION AND TO HELP PROVIDE FUTURE HABITAT FEATURES AS DETERMINED DURING THE PRE-CONSTRUCTION WALK. AS STIPULATED IN THE NOTICE OF INTENT AND ON THE PLANS, ALL TREES TO BE REMOVED WITHIN THE WETLAND AND WOODED/SELECTIVE CLEARING AREAS SHALL BE CUT (6") SIX INCHES ABOVE GRADE AND STUMPS SHALL REMAIN IN PLACE.
4. CONSTRUCTION ACCESS TO THE LIMIT OF WORK AND RENOVATION FOR THE BOARDWALK IS LIMITED. NO TEMPORARY ROAD OR ACCESS FOR WHEEL OR TRACK DRIVEN EQUIPMENT BELOW THE ADJACENT EXISTING ROADWAY IS ALLOWED. CONTRACTOR IS RESPONSIBLE, IF NEEDED, TO FURNISH LIFTING APPARATUS/Crane, TO PLACE AND REMOVE HEAVY EQUIPMENT REQUIRED FOR RENOVATION AND FINISHED WORK.

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PREPARED FOR:

CITY OF WORCESTER

DEPARTMENT OF
PUBLIC WORKS AND PARKS
50 OFFICER MANNY FAMILIA WAY
WORCESTER, MA 01605

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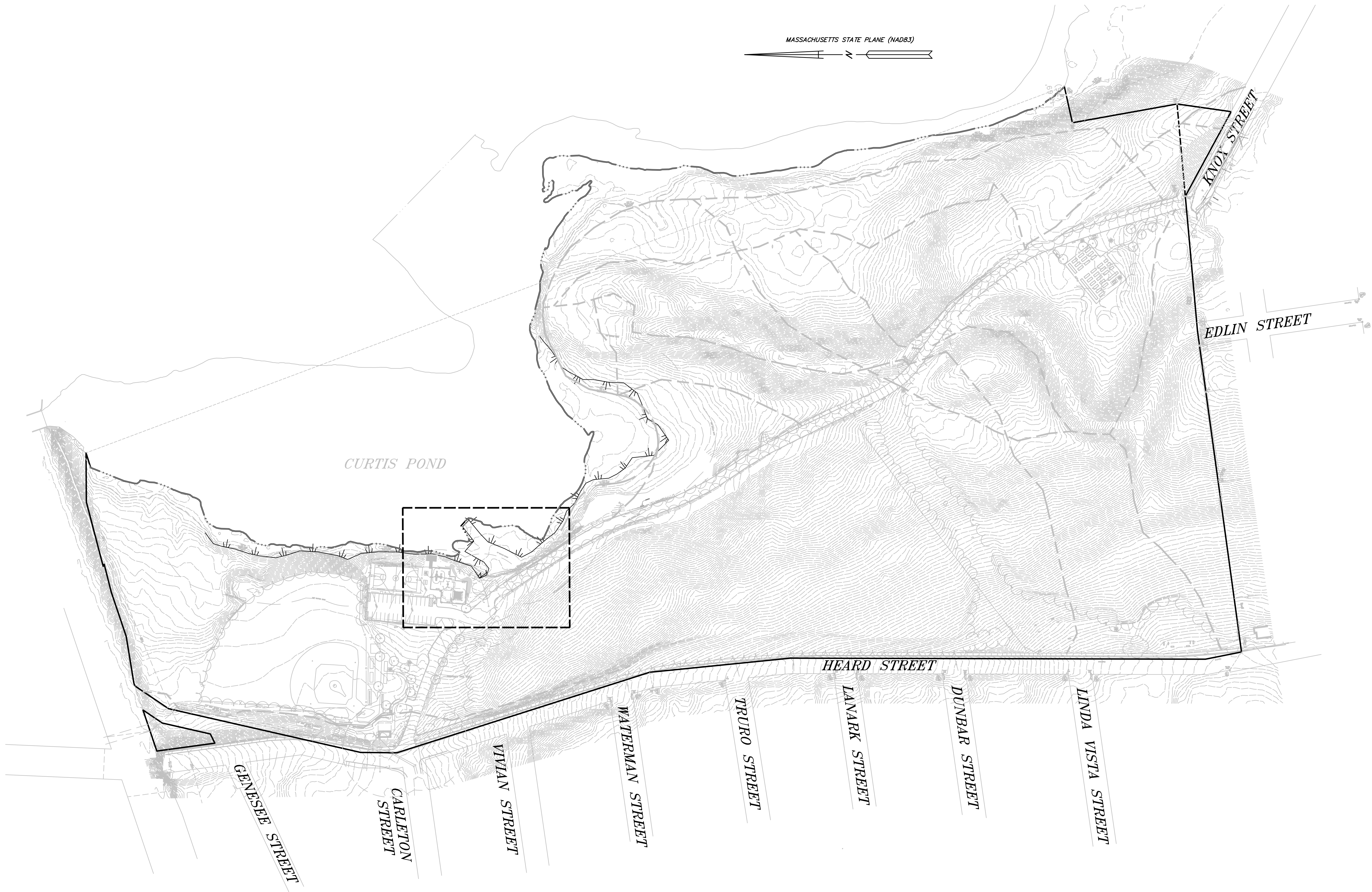
BEALS AND THOMAS, INC.
144 Turnpike Road
Southborough, Massachusetts 01772-2104
T 508.366.0560 | www.bealsandthomas.com

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PROJECT:
**BOARDWALK
RENOVATIONS
HADWEN PARK**
19 HEARD STREET
WORCESTER, MASSACHUSETTS
SCALE: N/A DATE: APRIL 3, 2023

NOTES, REFERENCES
AND LEGEND

B+T JOB NO. 2921.06	C1.1
B+T PLAN NO. 292106P016A-002	



MASSACHUSETTS STATE PLANE (NAD83)

FOR NOTES, REFERENCES AND LEGEND SEE SHEET C1.1.

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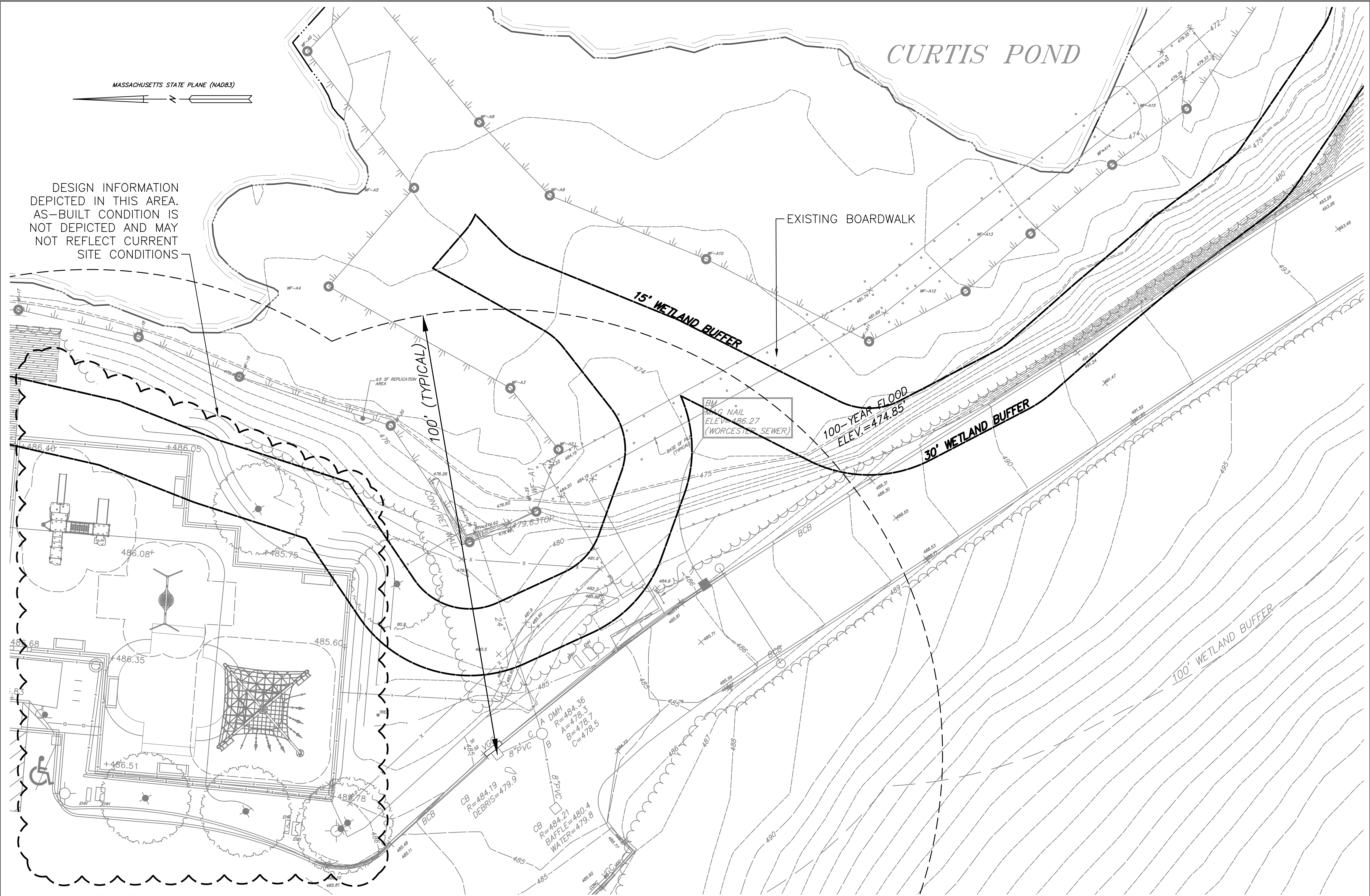
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OVERALL PLAN

B+T JOB NO. 2921.06

B+T PLAN NO.
292106P017A-001

C1.2



PREPARED FOR:

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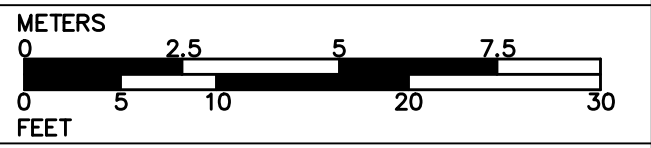
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EXISTING CONDITIONS

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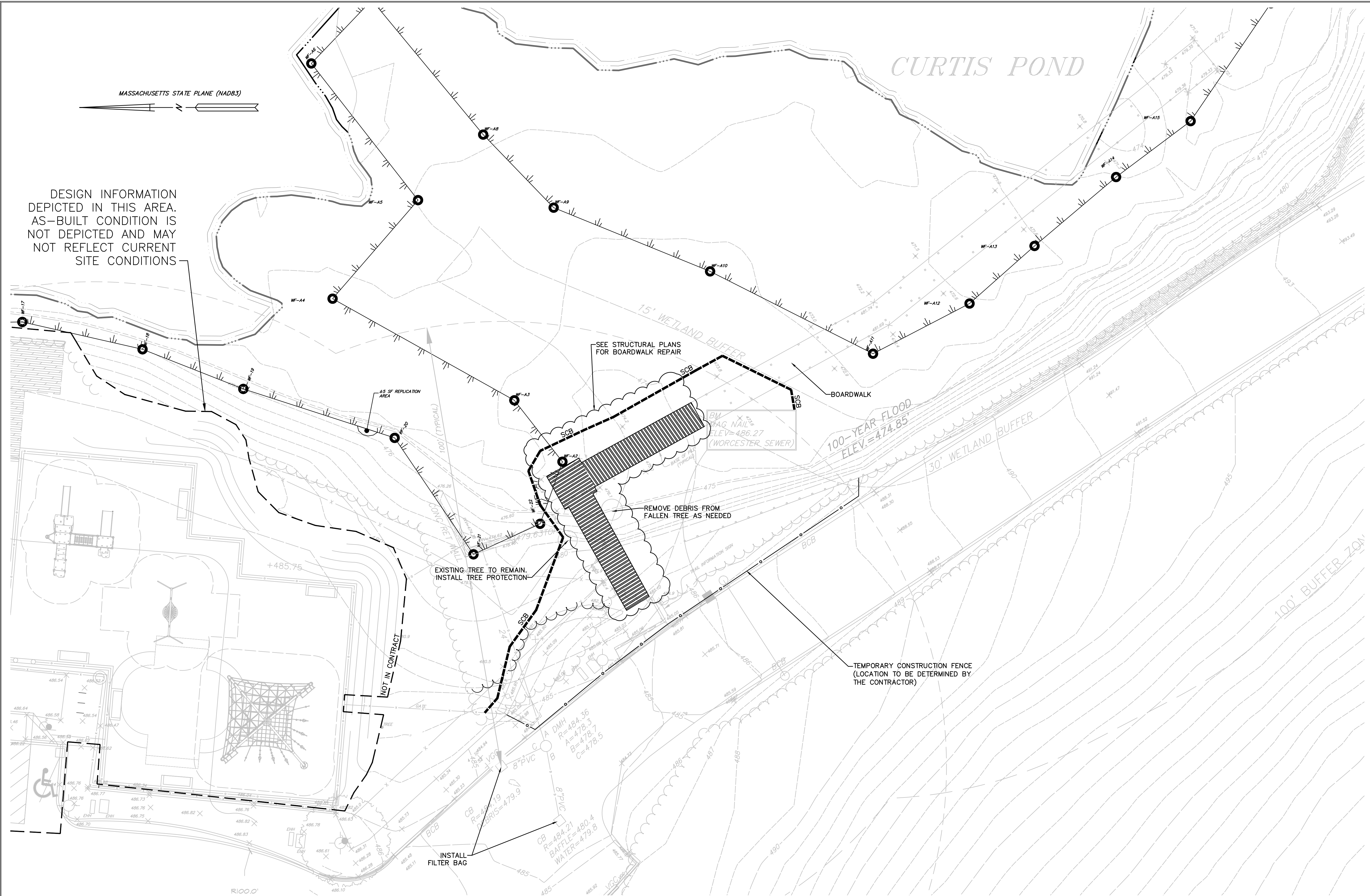
C1.3

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METERS
0 2.5 5 7.5
FEET
0 5 10 20 30

SITE PLAN

B+T JOB NO. 2921.06

B+T PLAN NO.
292106P017A-003

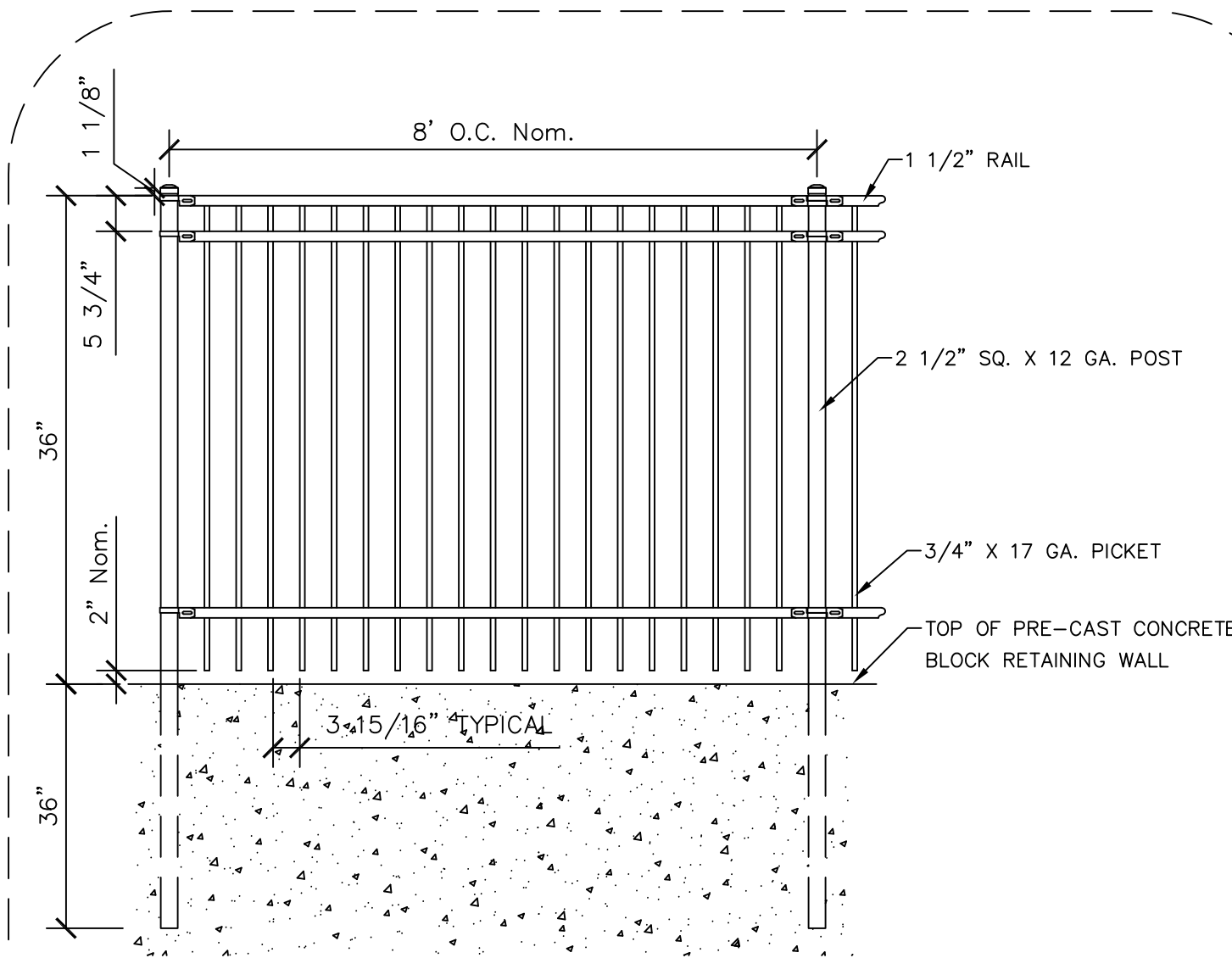
C2.1

FOR NOTES, REFERENCES AND LEGEND SEE SHEET C1.1.


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- NOTES:
1. FENCE TO BE INSTALLED ACCORDING TO MANUFACTURER SPECIFICATIONS
 2. FENCE SHALL BE MANUFACTURED BY AMERISTAR FENCE, AEGIS PLUS MAJESTIC STYLE OR APPROVED EQUAL
 3. FINISHES, BRACKETS, AND ADORNMENTS TO BE CHOSEN BY OWNER AND LANDSCAPE ARCHITECT
 4. FURNISH AND REPLACE ONE NEW CUSTOM WIDTH FENCE PANEL AND ASSOCIATED HARDWARE.
 5. REPLACE OR REPAIR/STRAIGHTEN ONE EXISTING END POST. DISPOSE DAMAGED FENCE PANEL.

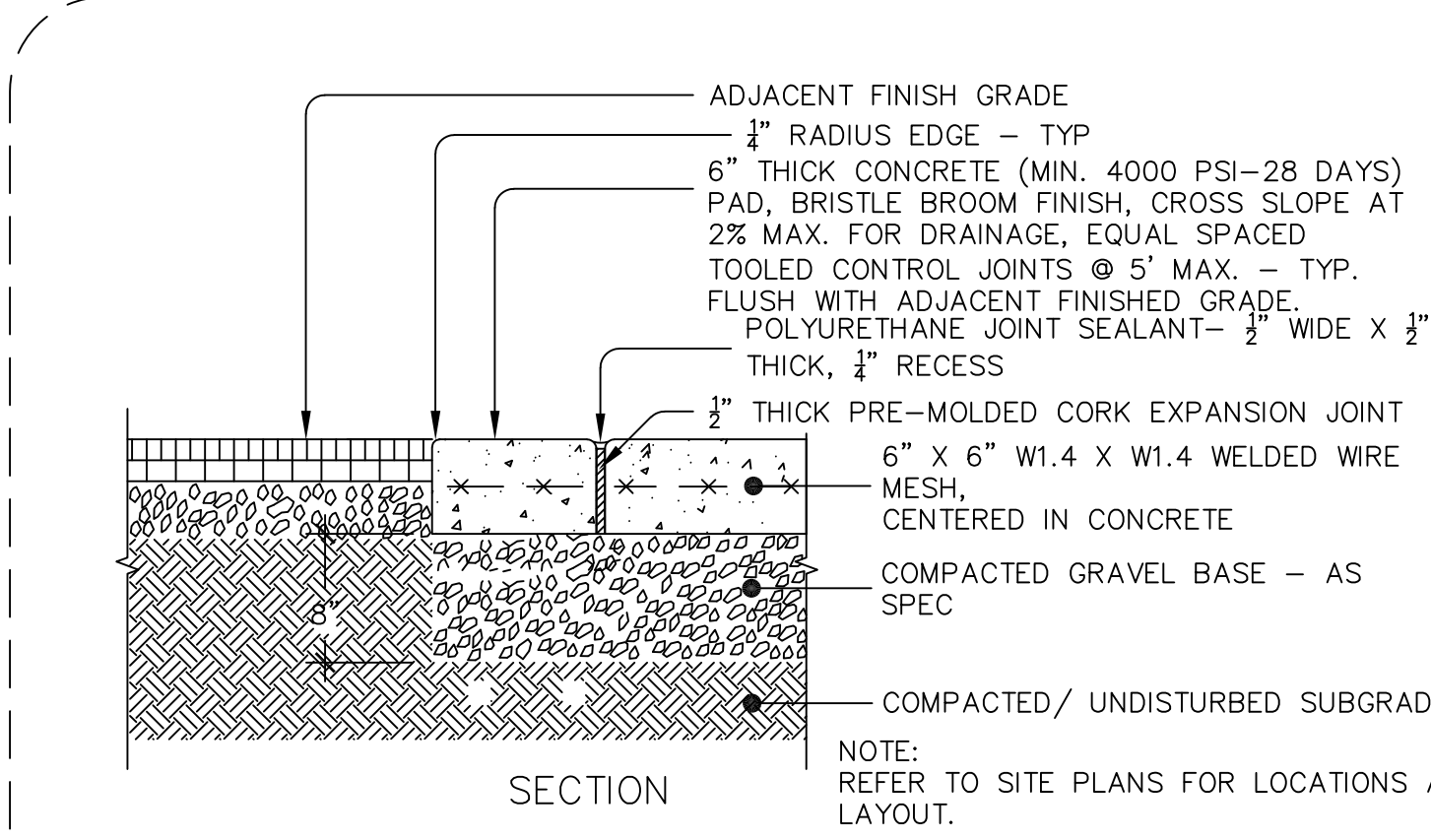


Dept. Of Public Works & Parks
Capital Projects Division
JAY J. FINK P.E.
Commissioner
ROBERT C. ANTONELLI, JR.
Assistant Commissioner

Parks, Recreation & Cemetery Division
36" High Ornamental Fence at Boardwalk Entrance

Not to Scale


D-3



Concrete Flatwork

BITUMINOUS CONCRETE PAVEMENT COURSE THICKNESS CHART

	BINDER COURSE	TOP COURSE	DENSE MIX
Roadway up to 12% grade	2-3"	1-3"	
Driveway And Public Sidewalk	1-2"		1"
Parking Lot And Park Sidewalk	1-2"	1-2"	

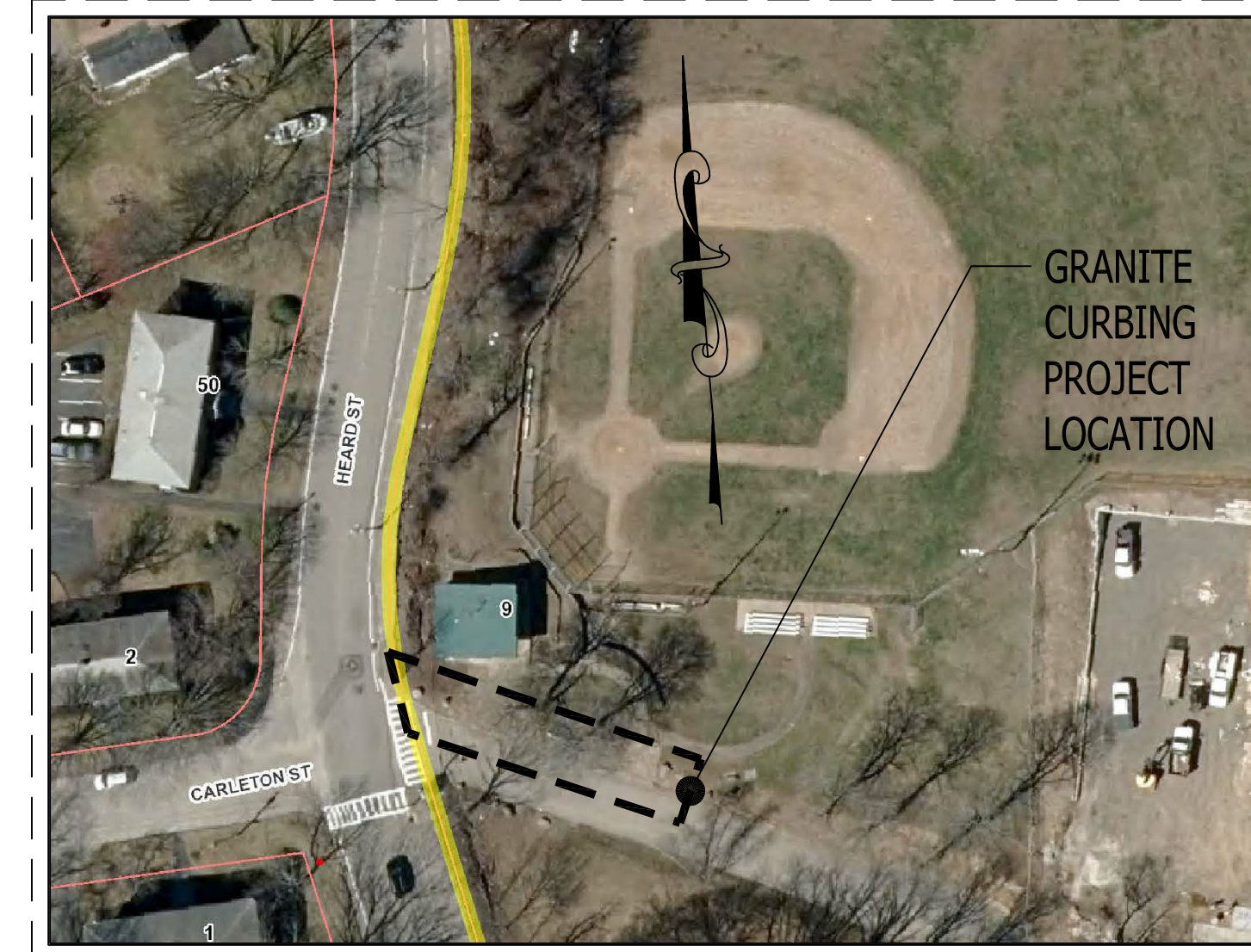


Dept. Of Public Works & Parks
Capital Projects Division
JAY J. FINK P.E.
Commissioner
ROBERT C. ANTONELLI, JR.
Assistant Commissioner

Parks, Recreation & Cemetery Division
Concrete & Bituminous Concrete Flatwork

Not to Scale

D-2

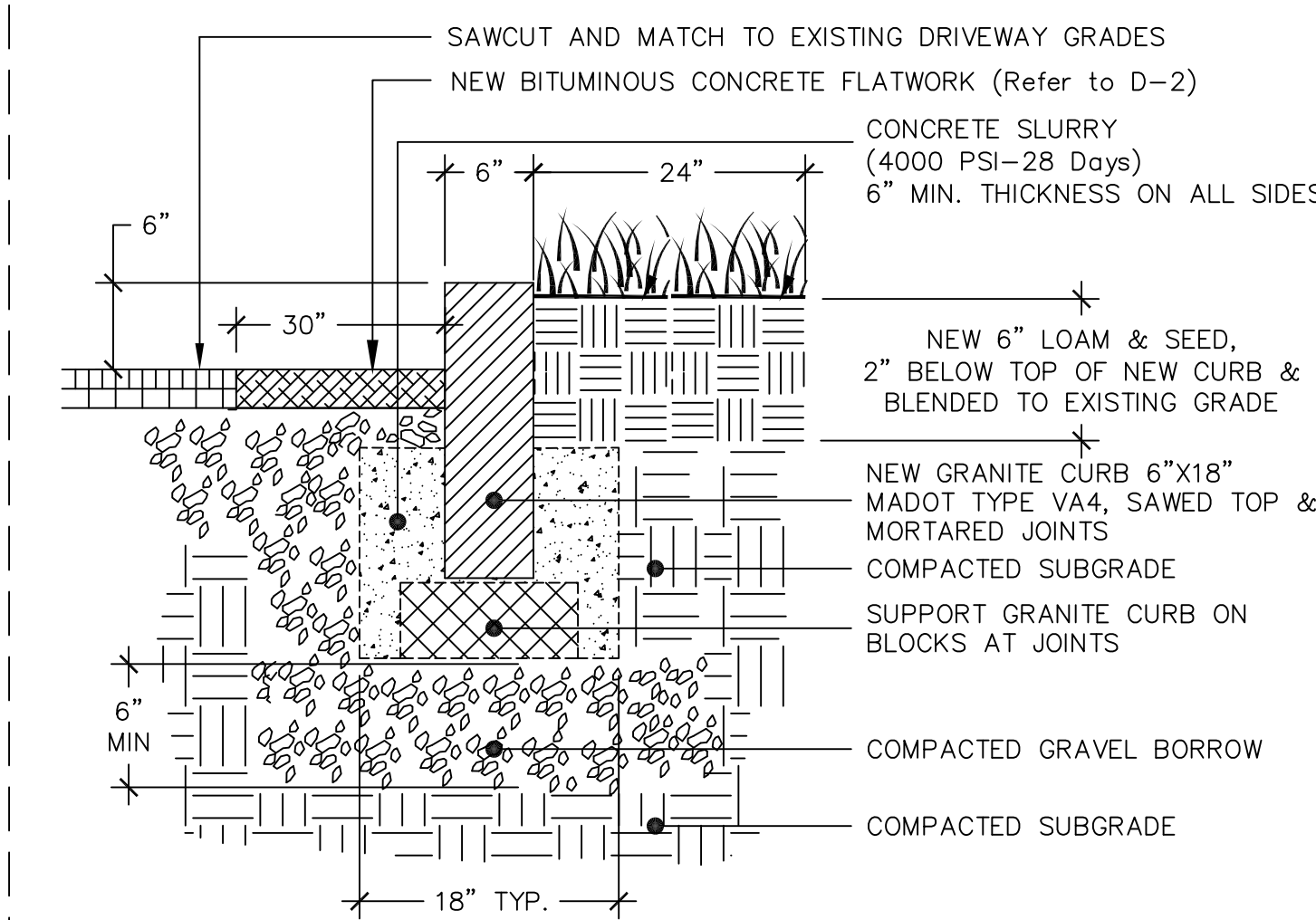



LOCUS MAP: NEW GRANITE CURB AT EXISTING DRIVEWAY

GRANITE CURB SCHEDULE

APPROX. LENGTH (FEET)	RADIUS (FEET)
BEGIN 13.017	N/A
1.828	2.0
2.115	N/A
12.784	50.0
31.046	N/A
8.393	100.0
35.673	N/A
3.141	2.0
END 15.846	N/A
TOTAL ±124.000	

NOTE: GRANITE CURB SCHEDULE PROVIDED FOR BIDDING PURPOSES ONLY, CONTRACTOR SHALL VERIFY IN THE FIELD AND SUBMIT SHOP DRAWING AND FINAL ALIGNMENT FOR REVIEW AND APPROVAL.



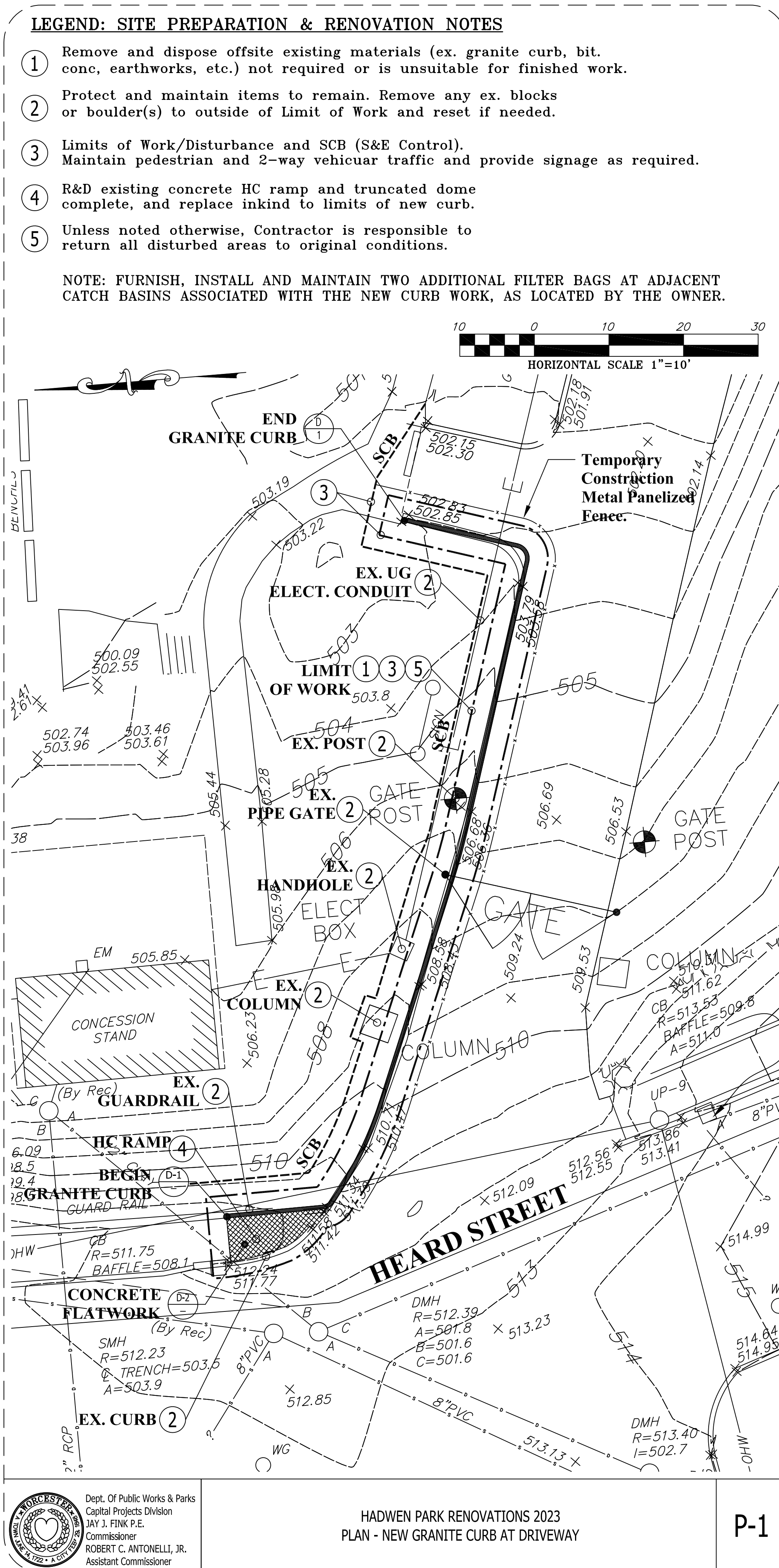


Dept. Of Public Works & Parks
Capital Projects Division
JAY J. FINK P.E.
Commissioner
ROBERT C. ANTONELLI, JR.
Assistant Commissioner

Parks, Recreation & Cemetery Division
Section - New Granite Curb (Type VA-4) at Driveway

Not to Scale

D-1





Dept. Of Public Works & Parks
Capital Projects Division
JAY J. FINK P.E.
Commissioner
ROBERT C. ANTONELLI, JR.
Assistant Commissioner

HADWEN PARK RENOVATIONS 2023
PLAN - NEW GRANITE CURB AT DRIVEWAY

P-1

REMARKS

Scale:

CO-SPONSOR

DRAWN BY: clv

CHECKED BY: clv

OWNER:

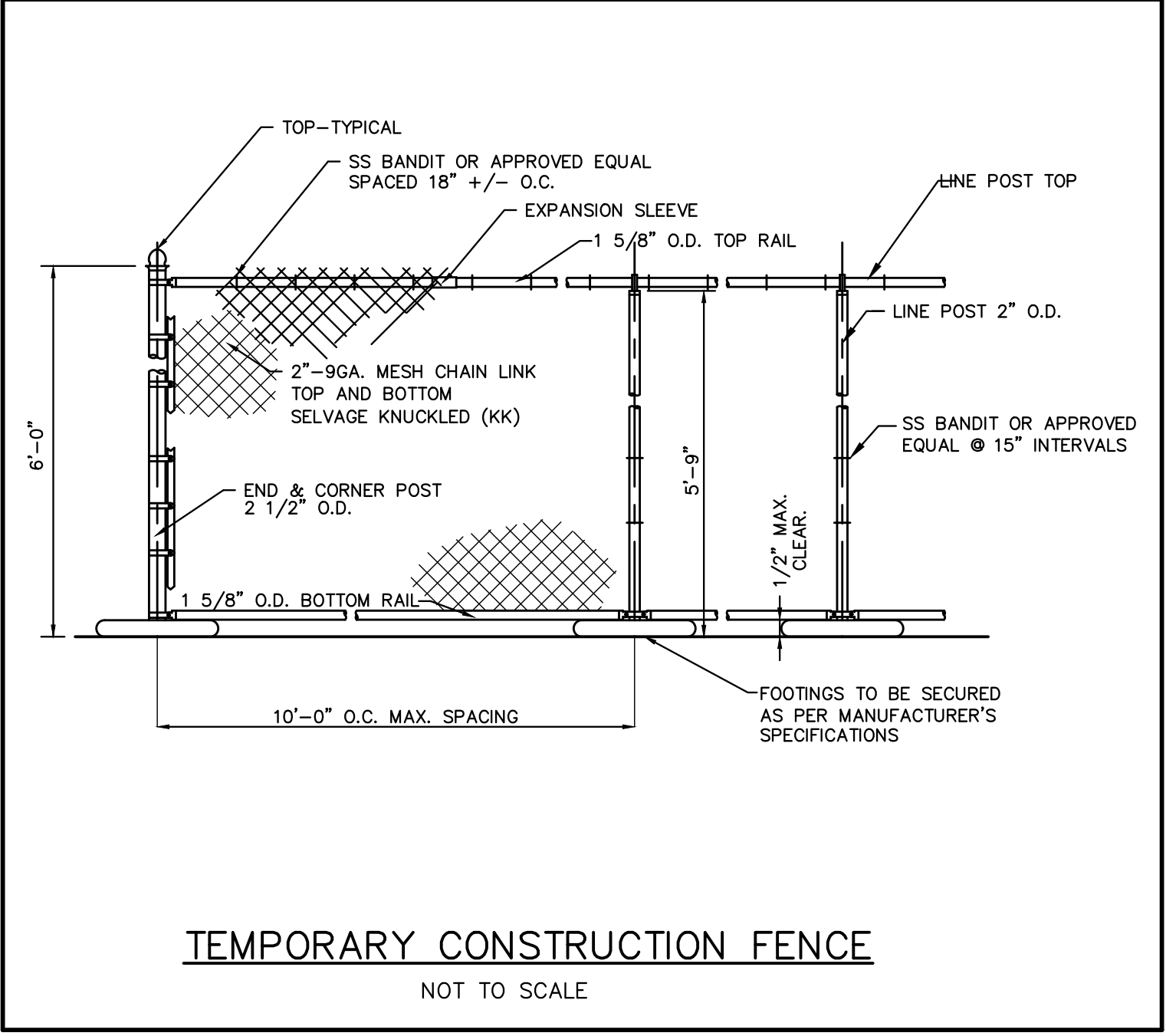
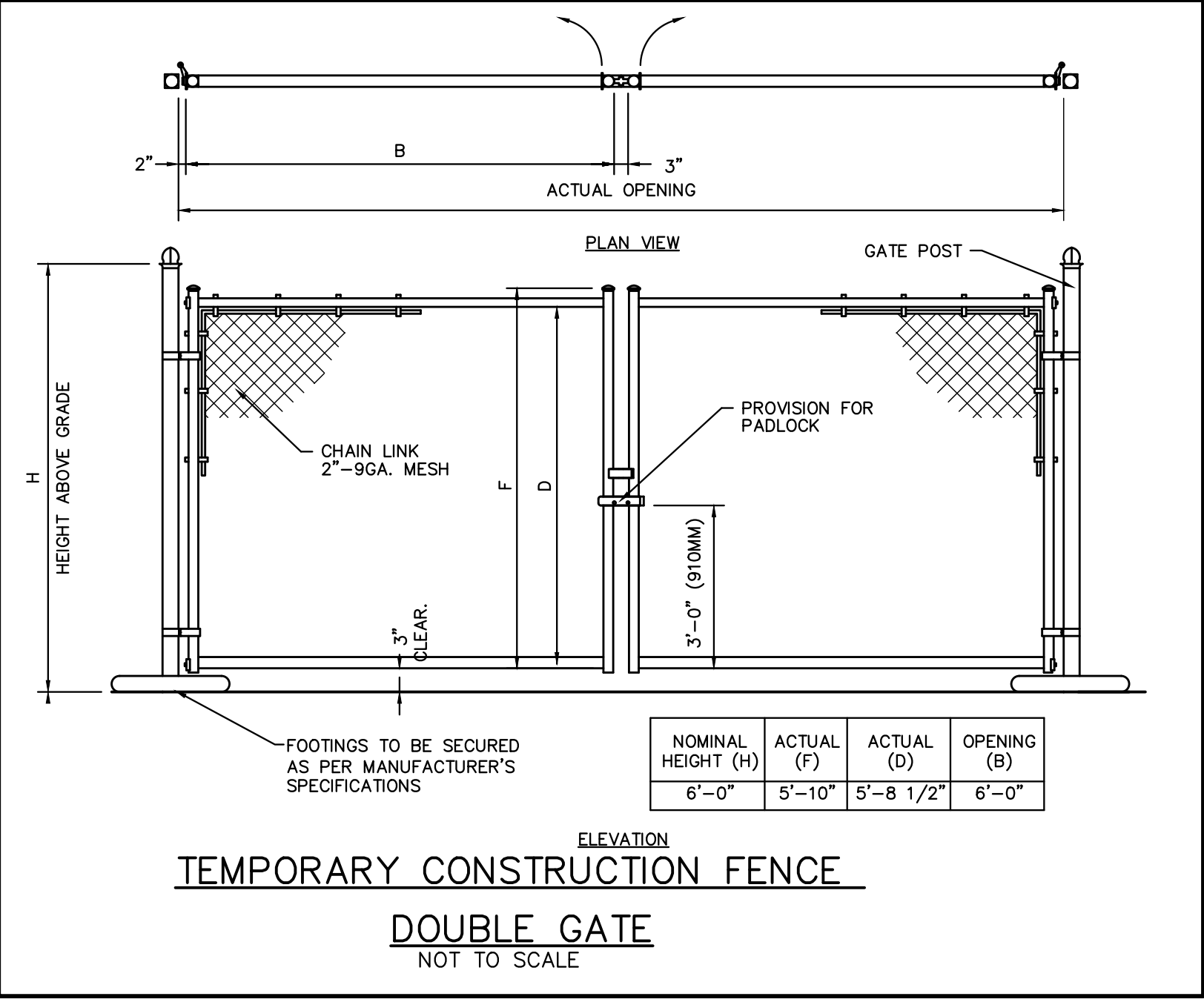
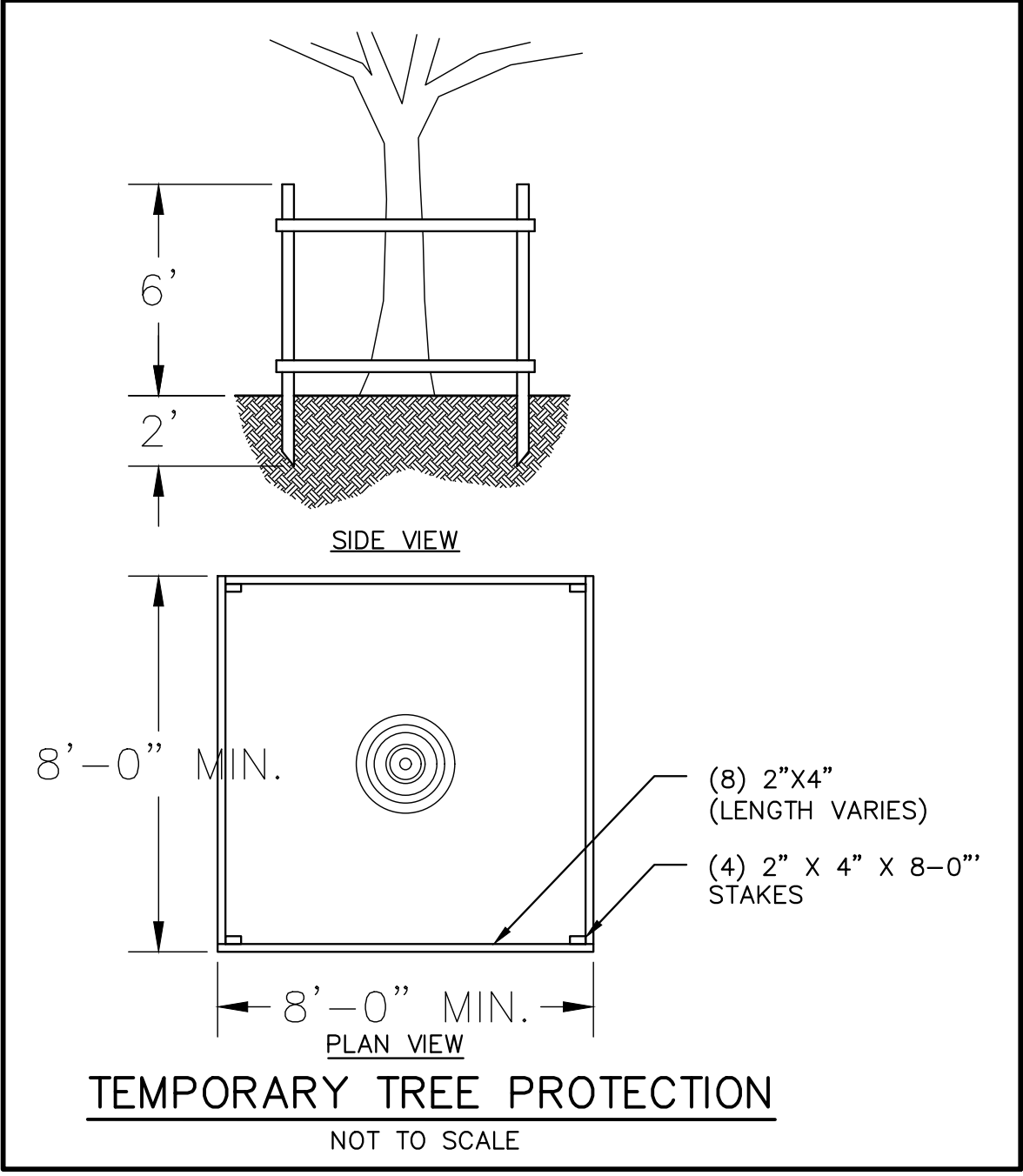
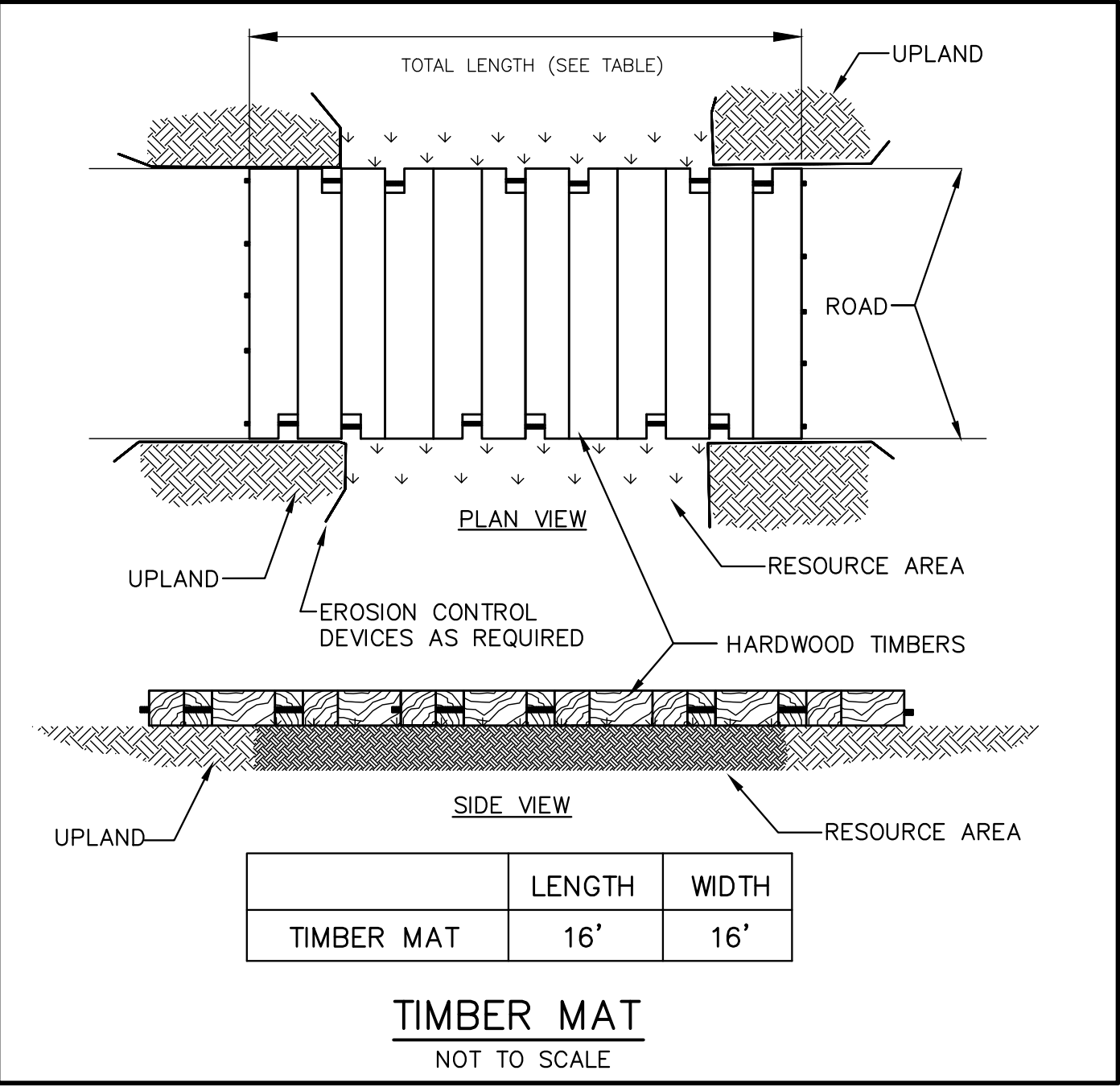
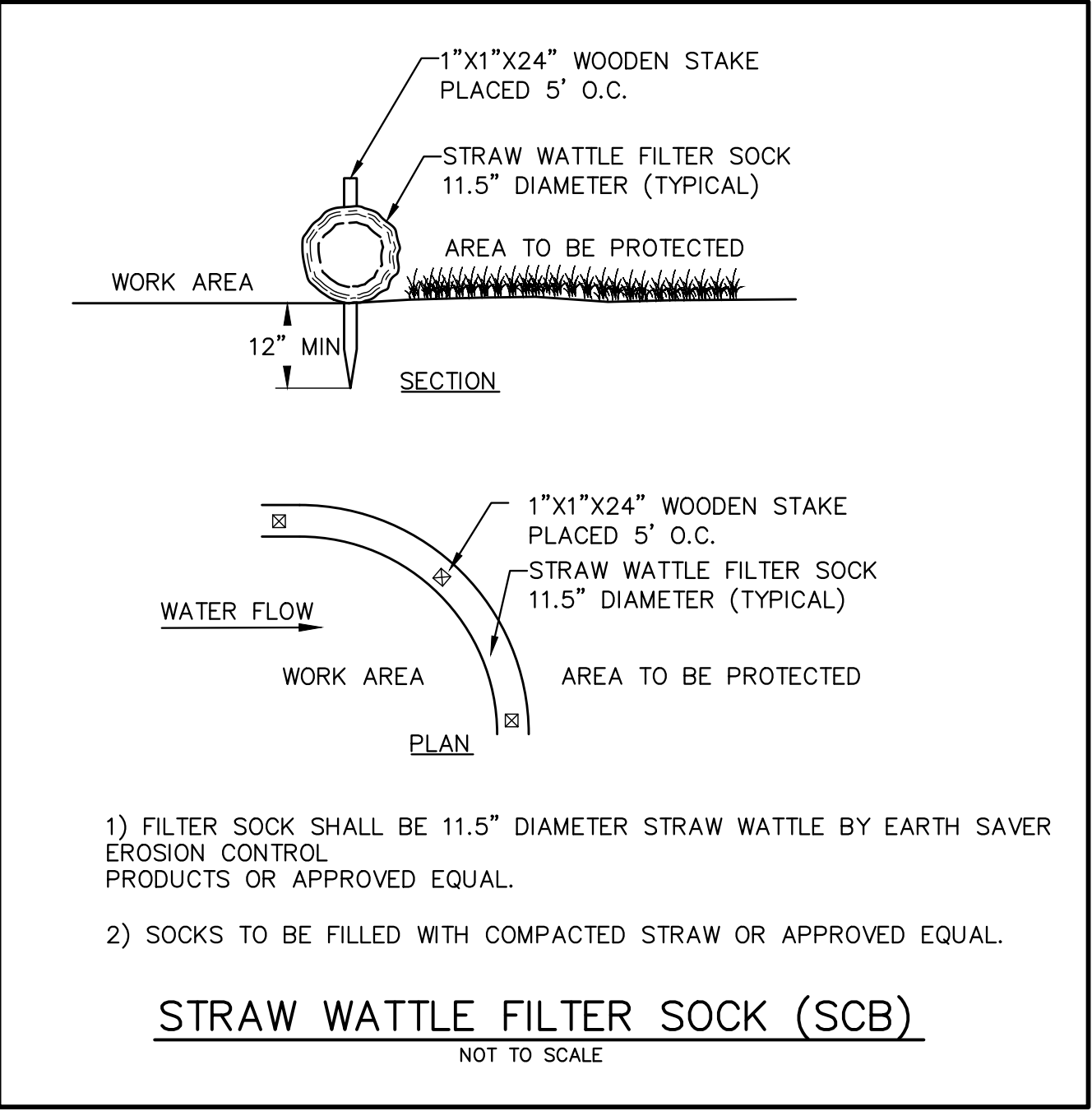
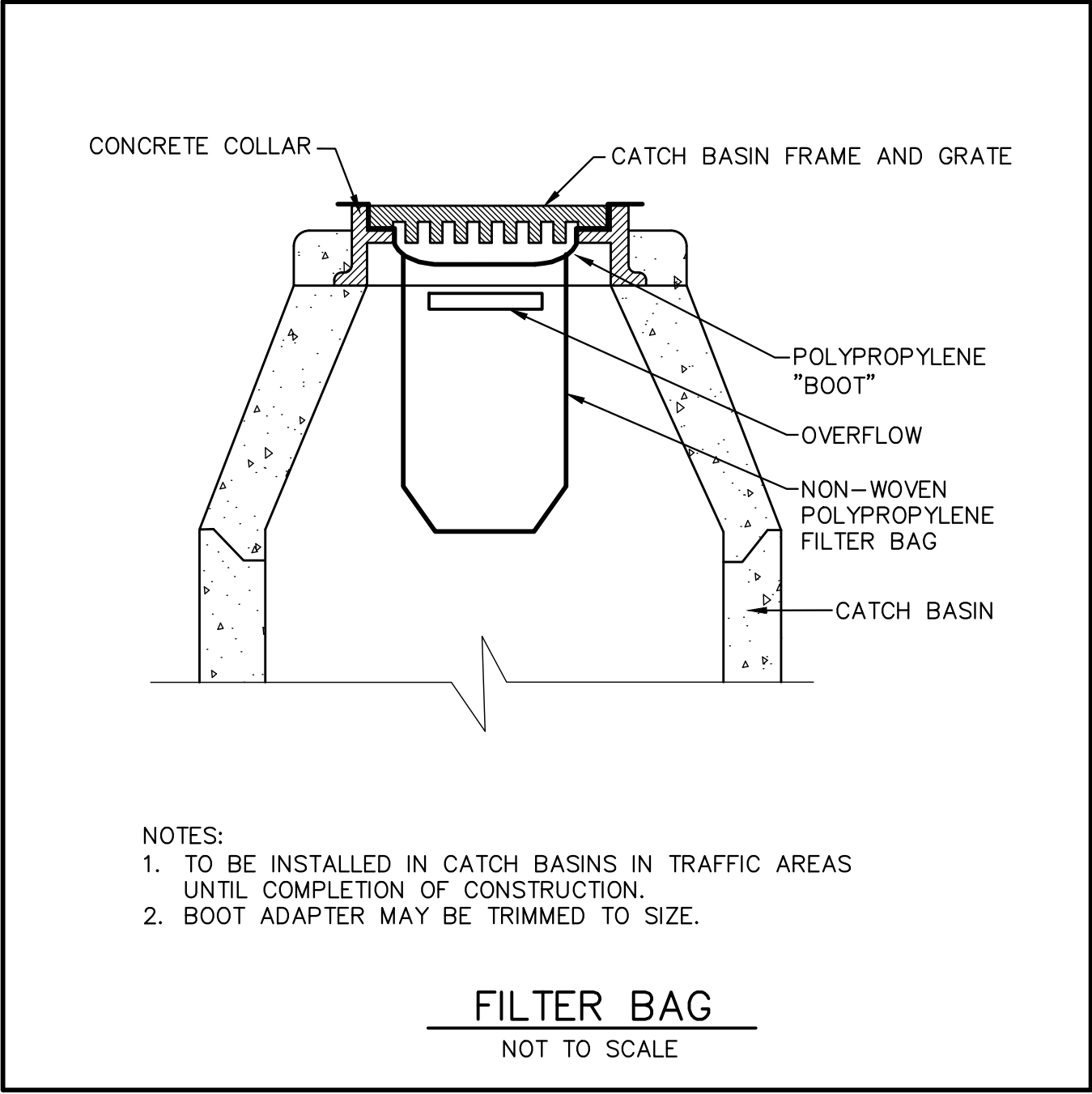
DPW AND PARKS
Parks, Recreation & Cemetery Division
50 OFFICER MANNY FAMILIA WAY
WORCESTER, MA 01605

PROJECT TITLE
HADWEN PARK
RENOVATIONS 2023
19 Heard Street
Worcester, MA

DRAWING NAME
NEW GRANITE CURB
AT DRIVEWAY ENTRANCE

DATE
APRIL 03, 2023

SHEET NUMBER
SHEET C2.2



FOR NOTES, REFERENCES AND LEGEND SEE SHEET C1.1.

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PREPARED FOR:

CITY OF WORCESTER

DEPARTMENT OF
PUBLIC WORKS AND PARKS
50 OFFICER MANNY FAMILIA WAY
WORCESTER, MA 01605

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PREPARED BY:

BEALS + THOMAS

BEALS AND THOMAS, INC.
144 Turnpike Road
Southborough, Massachusetts 01772-2104
T 508.366.0560 | www.bealsandthomas.com

5			
4			
3			
2			
1			
0	04/03/2023	ISSUED FOR CONSTRUCTION	
ISSUE DATE		DESCRIPTION	
DES	DWN	CHK'D	APP'D

PROJECT:

**BOARDWALK RENOVATIONS
HADWEN PARK**

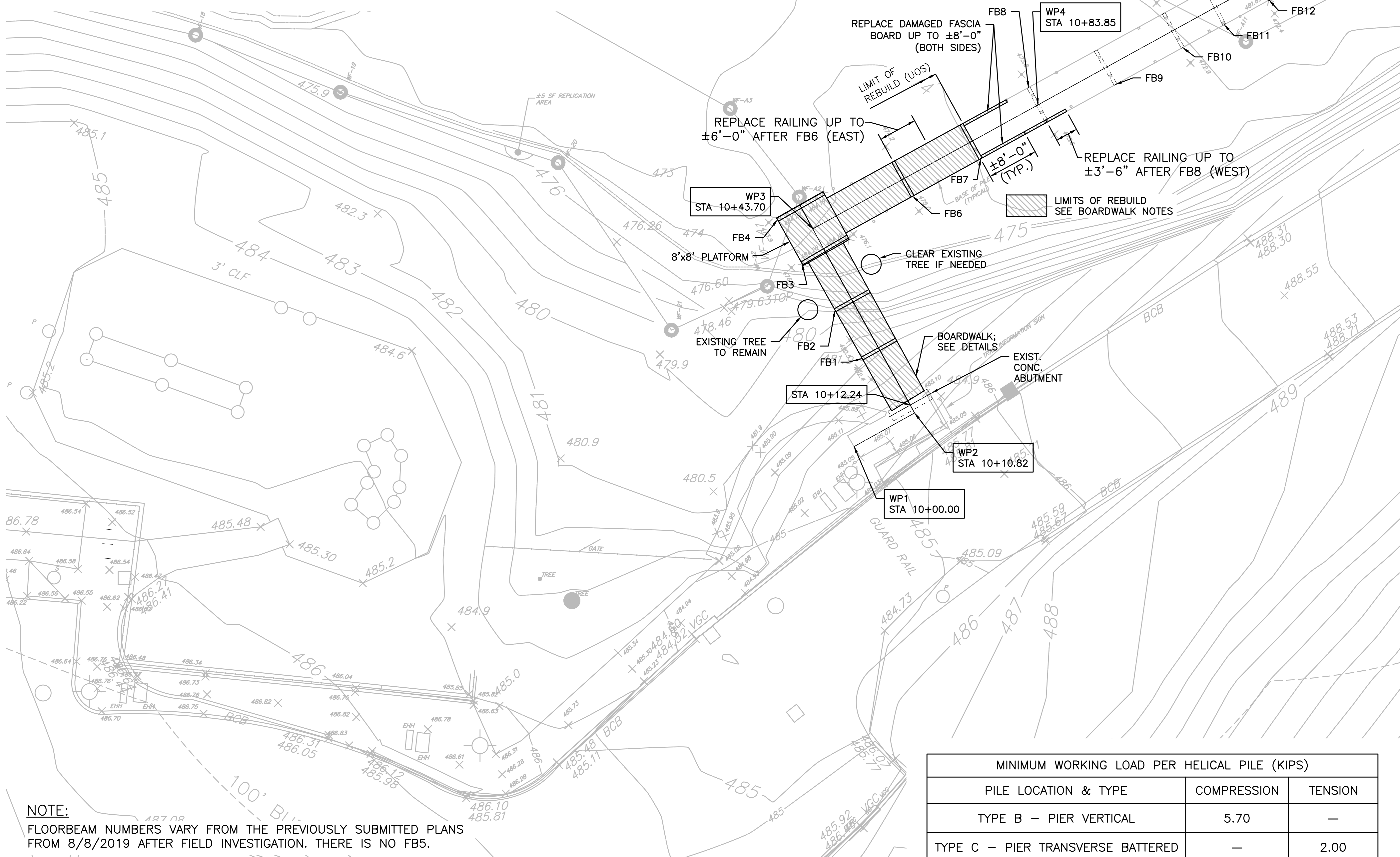
19 HEARD STREET
WORCESTER, MASSACHUSETTS

SCALE: N/A DATE: APRIL 3, 2023

SITE DETAILS

B+T JOB NO. 2921.06	C4.1
B+T PLAN NO. 292106P016A-003	

BOARDWALK ELEVATIONS								
LOCATION	STATION	NORTHING	EASTING	PATH ELEVATION	BOTTOM OF FLOORBEAM ELEVATION	GROUND ELEVATION	ESTIMATED LENGTH PER PILE TYPE A & B (FT)	ESTIMATED LENGTH PER PILE TYPE C (FT)
WP1	10+00.00	2911312.77	563555.26	485.00	—	484.42	—	—
WP2	10+10.82	2911303.31	563560.51	484.73	—	484.15	—	—
WP3	10+43.70	2911319.22	563589.28	482.75	—	473.50	—	—
WP4	10+83.85	2911284.05	563608.63	482.25	—	481.50	—	—
ABUT	10+12.24	2911303.99	563561.75	484.70	—	483.40	10	—
FB1	10+22.24	2911308.84	563570.49	484.01	482.18	480.20	14	9
FB2	10+30.91	2911313.05	563578.07	483.39	481.56	475.50	18	—
FB3	10+39.91	2911317.41	563585.94	482.75	480.92	474.00	19	14
FB4	—	2911321.11	563592.76	482.75	480.92	473.00	20	15
FB6	10+59.80	2911305.12	563597.04	482.25	480.42	474.55	18	13
FB7	10+71.95	2911294.47	563602.90	481.75	479.92	474.05	18	—
FB8	10+83.84	2911284.05	563608.63	481.25	479.42	473.75	18	13



GENERAL PLAN
SCALE: 1" = 10'

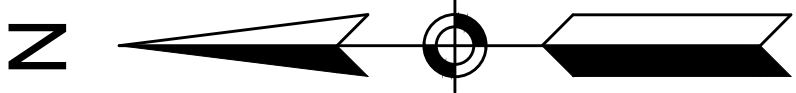
MINIMUM WORKING LOAD PER HELICAL PILE (KIPS)		
PILE LOCATION & TYPE	COMPRESSION	TENSION
TYPE B – PIER VERTICAL	5.70	—
TYPE C – PIER TRANSVERSE BATTERED	—	2.00
TYPE C – PIER LONGITUDINAL BATTERED	—	2.00

BOARDWALK REBUILD NOTES

- REBUILD PORTIONS OF DAMAGED BOARDWALK TO THE LIMITS SHOWN.
- REBUILD LIMITS WERE DETERMINED FROM VISUAL SITE INSPECTION. CONTRACTOR SHALL PERFORM THEIR OWN INSPECTION AND MEASUREMENTS TO VERIFY LIMITS OF DAMAGED SECTIONS.
- REPLACE ALL PIER HELICAL PILE EXTENSIONS AND HARDWARE FROM THE GROUND UP WITHIN THE LIMITS OF THE REBUILD. CONTRACTOR SHALL ACCOUNT FOR UP TO 4 HELICAL PILES FOR TOTAL REPLACEMENT. THE SITE HAS LIMITED ACCESS FOR EQUIPMENT; THEREFORE, CONTRACTOR SHALL ACCOUNT FOR THIS.
- REBUILT BOARDWALK SHALL BE PER DETAILS SHOWN IN THESE PLANS ALONG WITH ANY ADJUSTMENTS MADE FROM CONTRACTOR'S INSPECTION AND MEASUREMENTS.

GENERAL AND MATERIAL NOTES:

- DESIGN IN ACCORDANCE WITH ASCE 7-10, MASSACHUSETTS STATE BUILDING CODE 9th EDITION, NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION, 2015.
- DESIGN LIVE LOAD = 100PSF, SNOW LOAD = 55PSF
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH LATEST EDITION OF NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION.
- ALL BOLTS BELOW DECKING INCLUDING ANCHOR BOLTS SHALL BE 5/8" A307 GALV. U.O.N.
- ALL DECKING, RAIL CAPS, KICK RAILS TO BE IPE TIMBER.
- ALL RAILS, POSTS, TO BE 2x2x1/2" HSS GALVANIZED STEEL CONFORMING TO ASTM A500.
- RAIL CABLE PICKETS AND HARDWARE SHALL BE STAINLESS STEEL.
- ALL SCREWS, WHERE INDICATED ARE #10 2 1/2" STAINLESS STEEL, 2 PER CONNECTED MEMBER, MINIMUM, U.O.N.
- CONNECT JOISTS TO FLOOR BEAMS WITH SIMPSON-TIE LTS12 TWIST STRAPS OR EQUIVALENT. TOE NAIL BLOCKING AND JOIST AT ABUTMENT WITH 4 GALV. 12D NAILS PER STRINGER.
- ALL STRUCTURAL MEMBERS TO BE PRESSURE-TREATED SOUTHERN YELLOW PINE SELECT STRUCTURAL OR BETTER.
- ALL BOARDWALK WOOD DIMENSIONS ARE NOMINAL.
- ALL DOUBLE JOISTS SHALL BE FULLY GLUED AND NAILED W/ 3 8d NAILS @ 12" PITCH ALTERNATE SIDES
- HELICAL ANCHOR BEAM CONNECTION FOR VERTICAL, BRACING, AND INCLINED ANCHORS SHALL BE A CONCENTRICALLY LOADED SADDLE TYPE BRACKET, HAVING COMPRESSION AND/OR TENSION CAPACITIES AS INDICATED IN TABLE. BRACKET SHALL BE CONNECTED TO TIMBER BEAM WITH 2 - 3/4" BOLTS. BOLTS SHALL HAVE A MINIMUM EDGE DISTANCE OF 3" TO EDGE OF BEAM AND A MINIMUM SPACING OF 5".
- PROVIDE INSTALLATION PROCEDURE FOR DETERMINING REQUIRED HELICAL ANCHOR CAPACITIES ALONG WITH SHOP DRAWINGS OF THE HELICAL ANCHORS TO ENGINEER FOR APPROVAL. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS INCLUDING TESTING REQUIREMENTS.
- CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF fc'=4000PSI AND SHALL BE AIR-ENTRAINED. MIX DESIGN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM 615-81, PROVIDE 2" CLEAR COVER FROM FACE OF CONCRETE UNLESS NOTED OTHERWISE ON PLANS.
- POST INSTALLED ANCHOR BOLTS SHALL BE SET IN NON-SHRINK GROUT OR EPOXY RESIN.
- SEE GEOTECHNICAL REPORT, DATED AUG. 2019 IN SPECIAL PROVISIONS FOR SOIL DATA AND RECOMMENDATIONS.
- THE PROVIDED ALIGNMENT SHOWN MAY REQUIRE ADJUSTMENTS TO AVOID OBSTRUCTIONS.
- SHOP DRAWINGS FOR RAILINGS SHALL BE PREPARED BASED ON FIELD MEASURED DIMENSIONS OF THE AS-BUILT BOARDWALK, AND SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION.



63 KENDRICK STREET
NEEDHAM, MA 02494
781-355-7100
781-355-7101 (FAX)

GILL

ENGINEERING

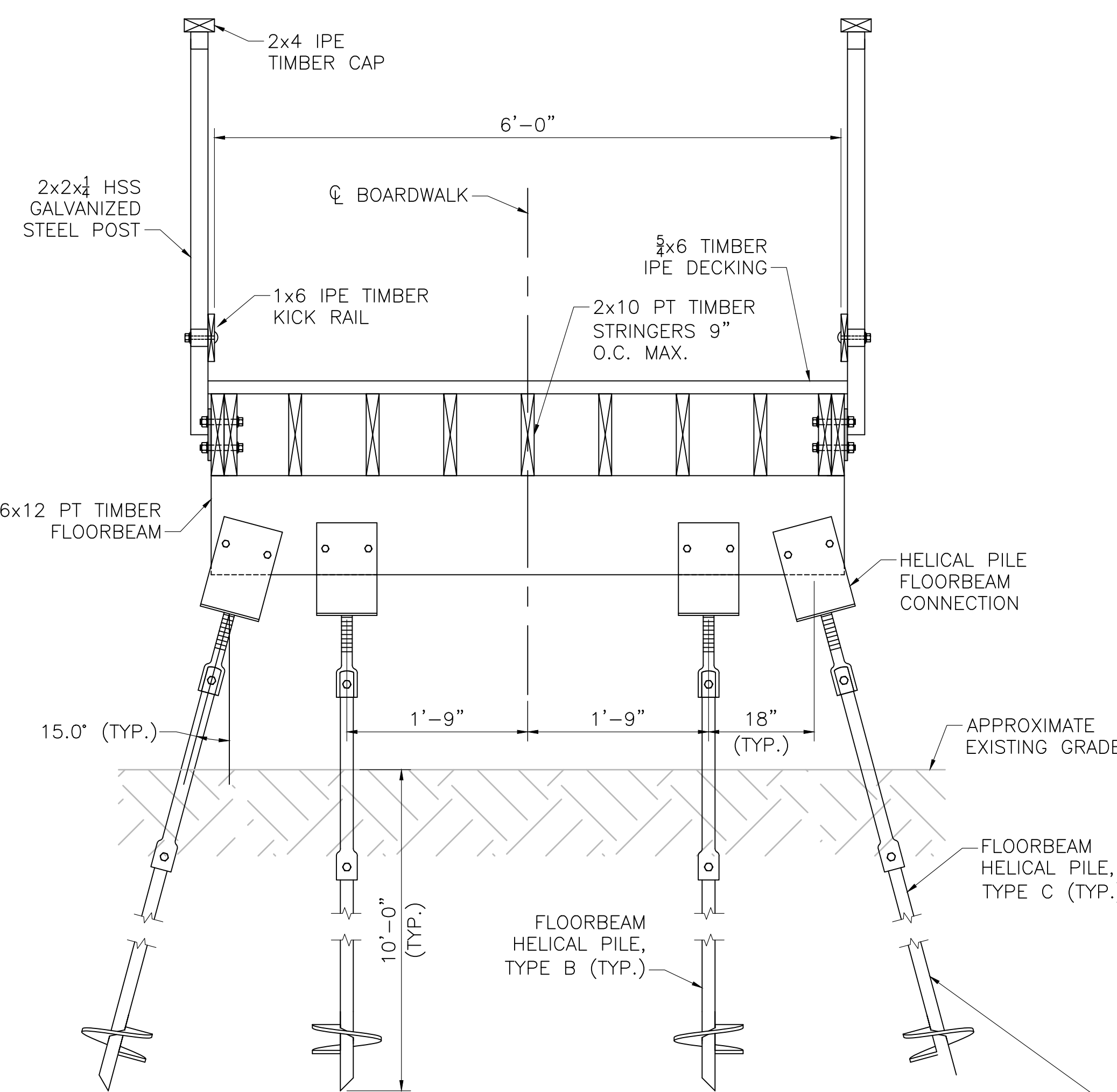
DATE 4/03/23	DRW BY US	CALC BY JF	APPR BY KT	DESCRIPTION ISSUE FOR CONSTRUCTION	REGISTERED PROFESSIONAL ENGINEER	DATE
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HADWEN PARK
BEALS AND THOMAS

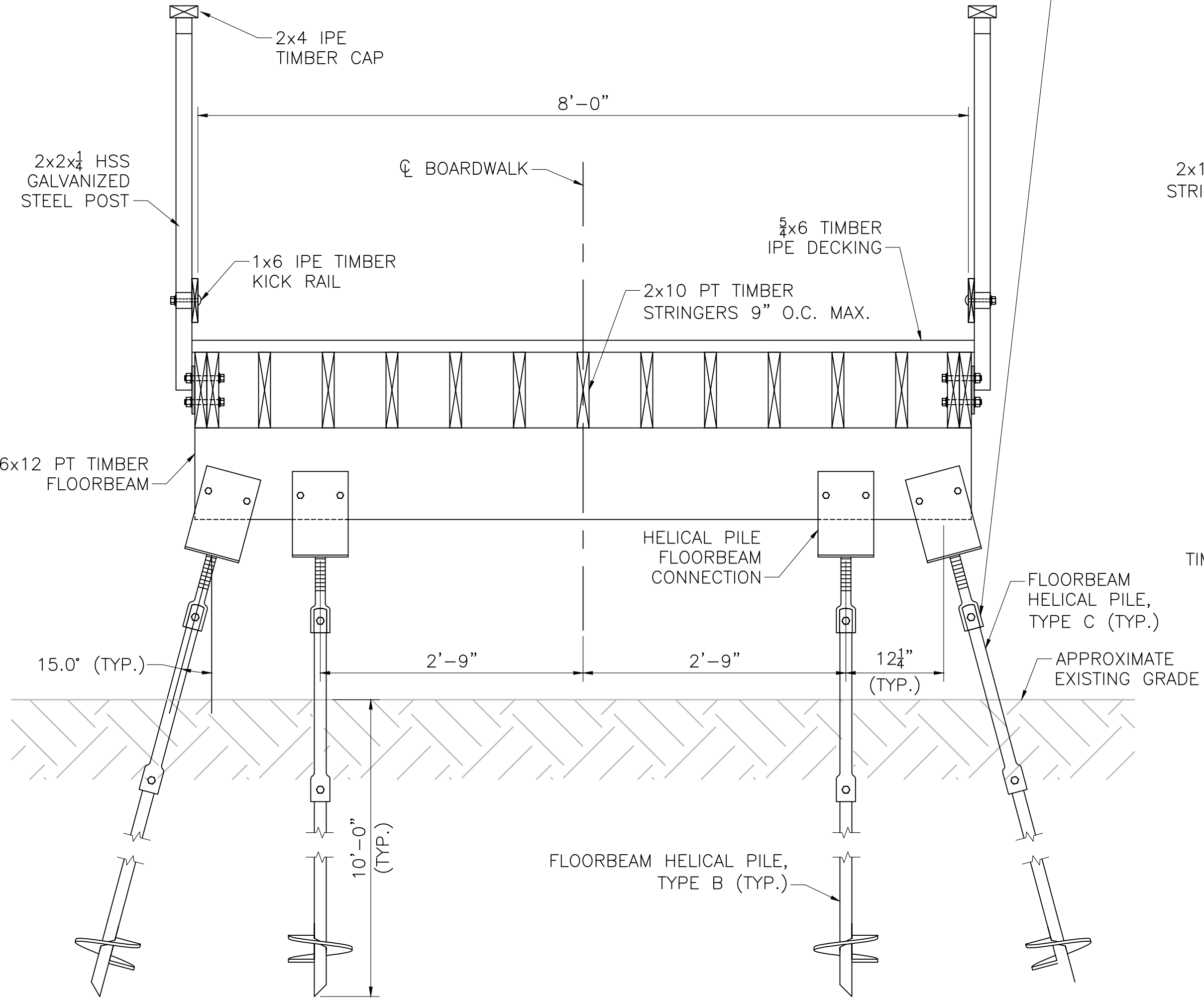
BOARDWALK RENOVATION FOR HADWEN PARK
WORCESTER, MA

GENERAL PLAN

SHEET 1 OF 4



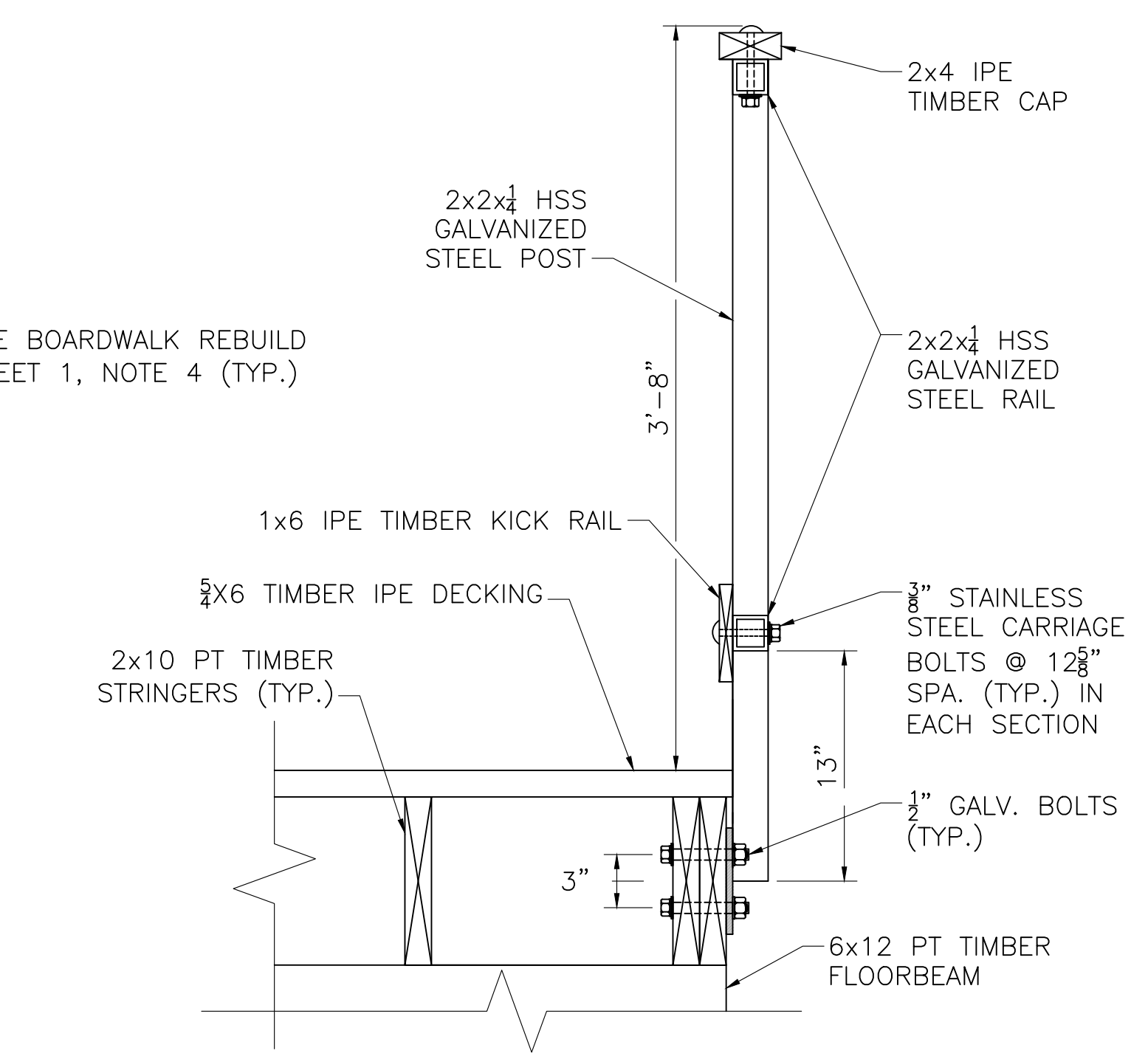
BOARDWALK TYPICAL SECTION
SCALE: 1" = 1'-0"



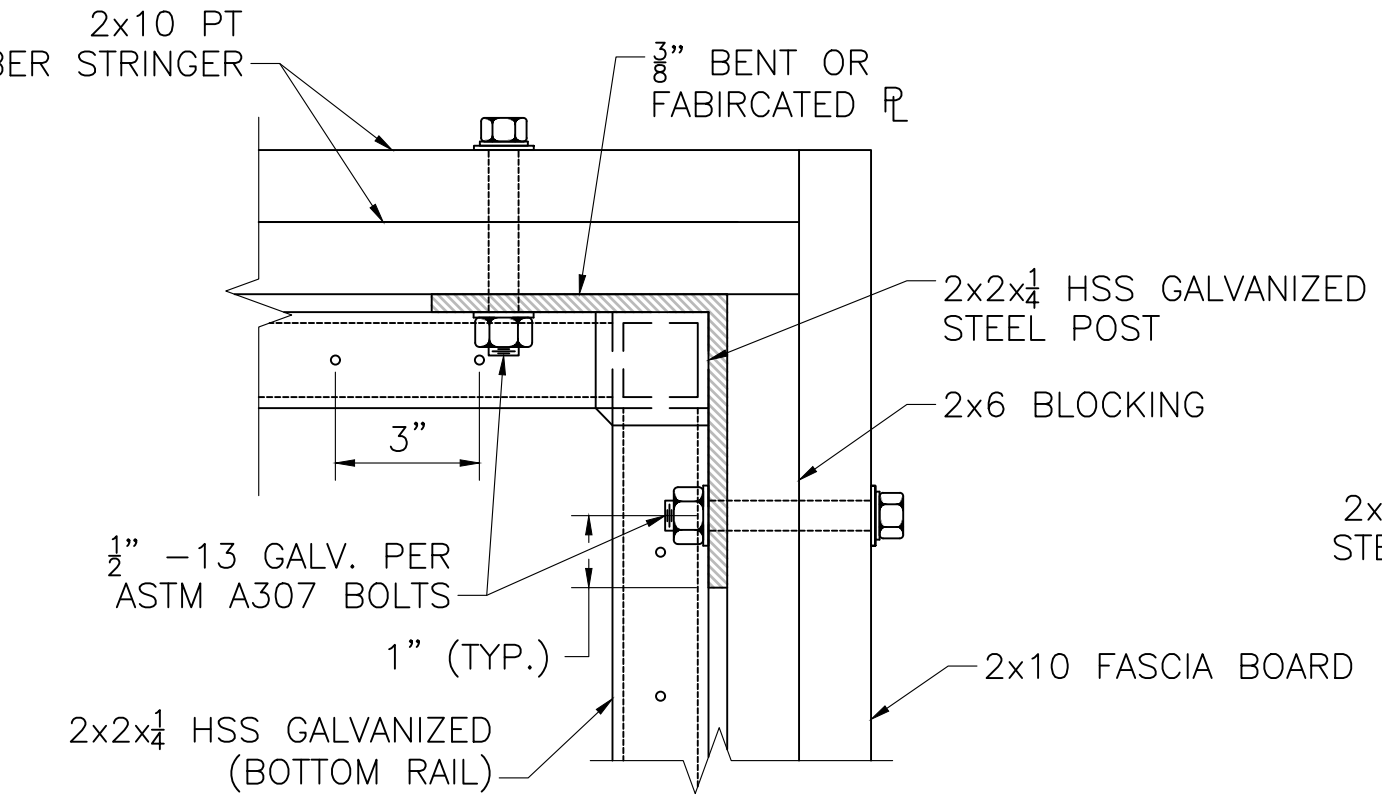
LANDING TYPICAL SECTION
SCALE: 1" = 1'-0"

NOTE:
ALL HELICAL PILES ARE 1 1/2" SQUARE SECTIONS

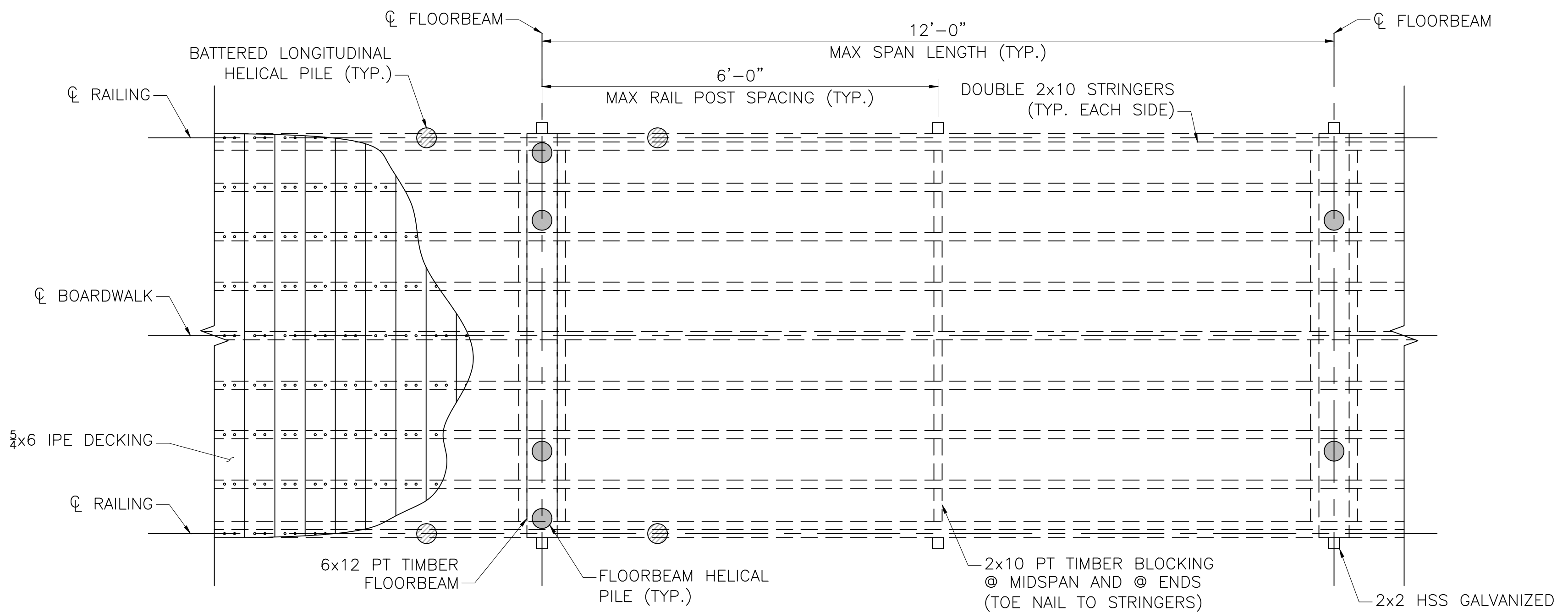
SEE BOARDWALK REBUILD
SHEET 1, NOTE 4 (TYP.)



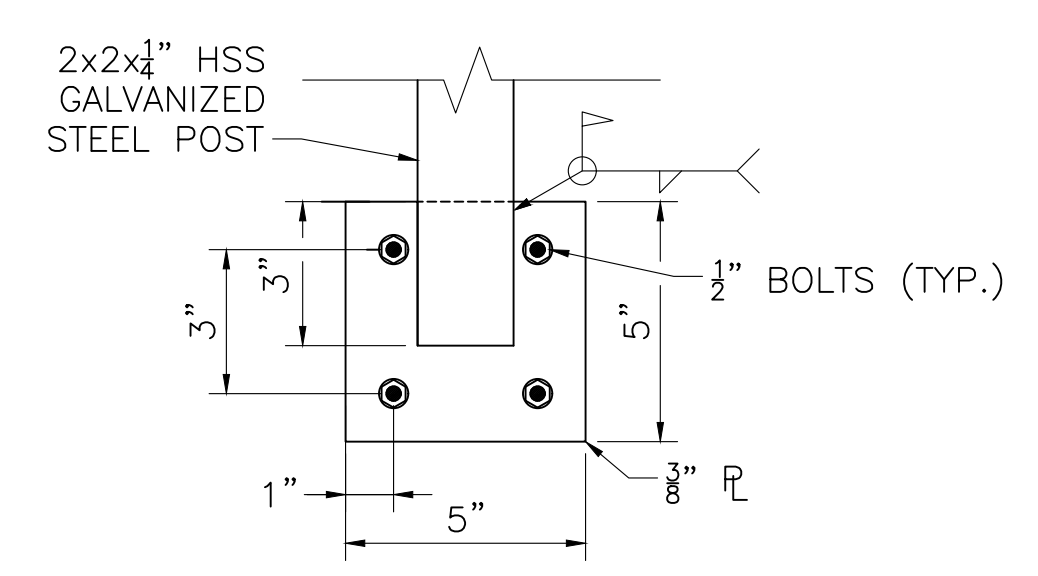
TYPICAL RAILING SECTION
SCALE: 1 1/2" = 1'-0"



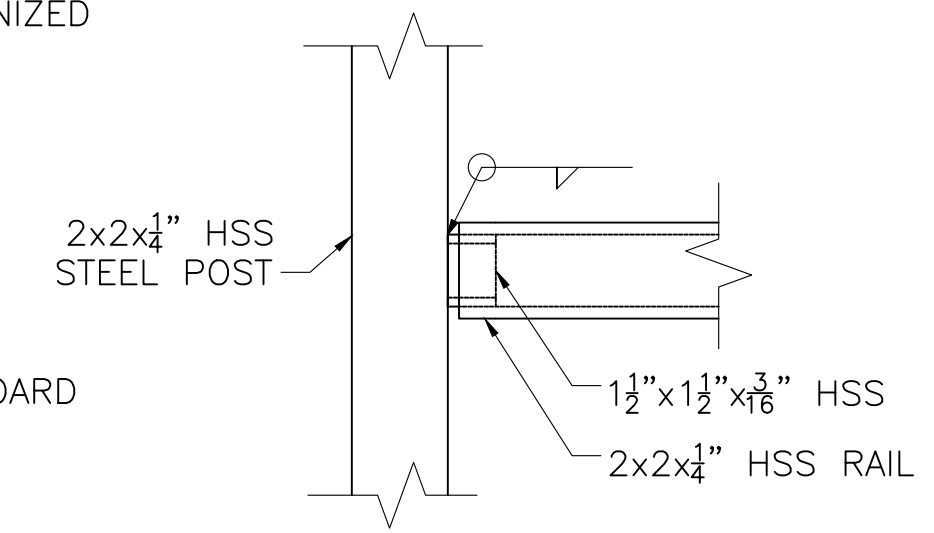
INSIDE CORNER RAILING DETAIL
SCALE: 3" = 1'-0"



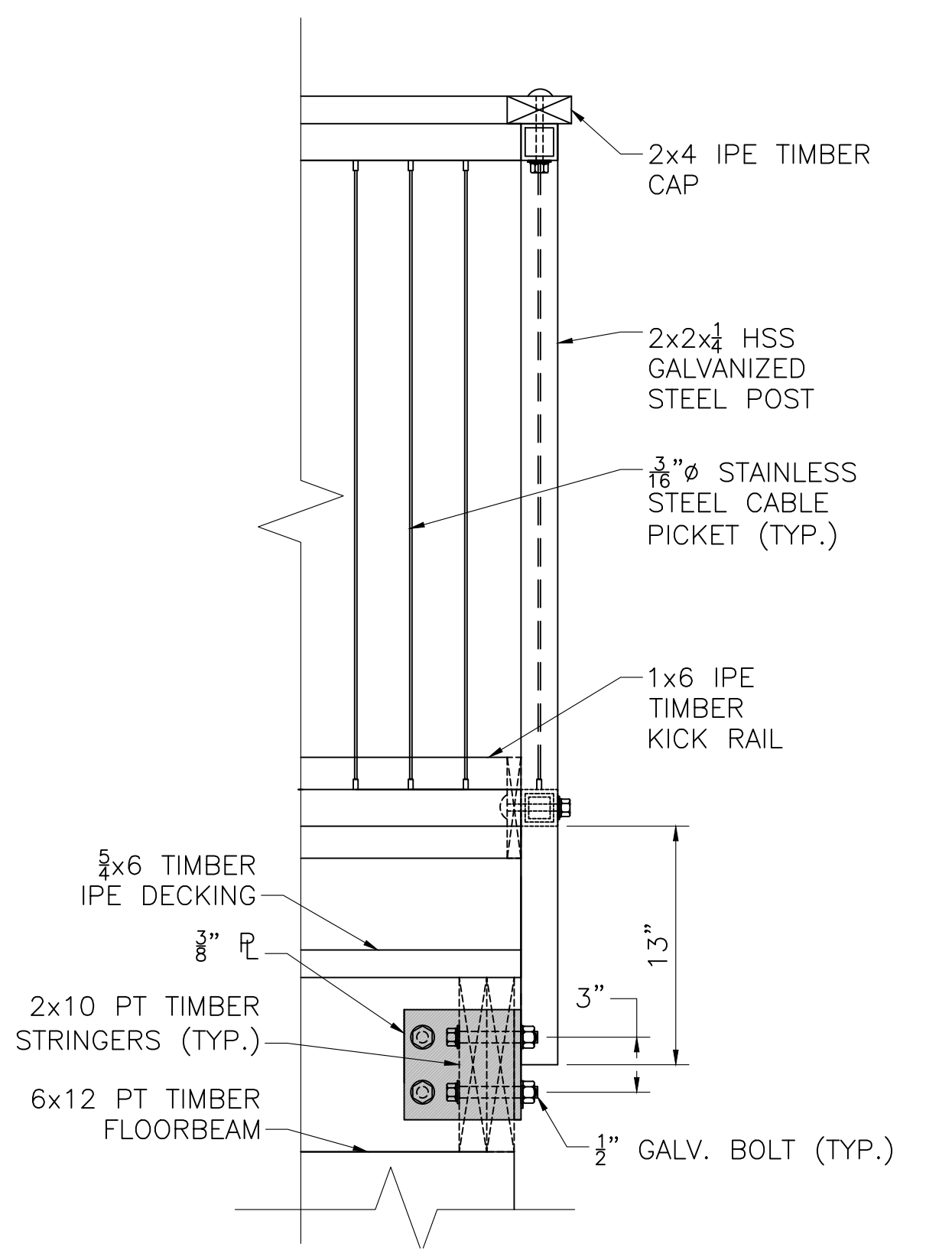
BOARDWALK TYPICAL FRAMING PLAN
SCALE: 3/4" = 1'-0"



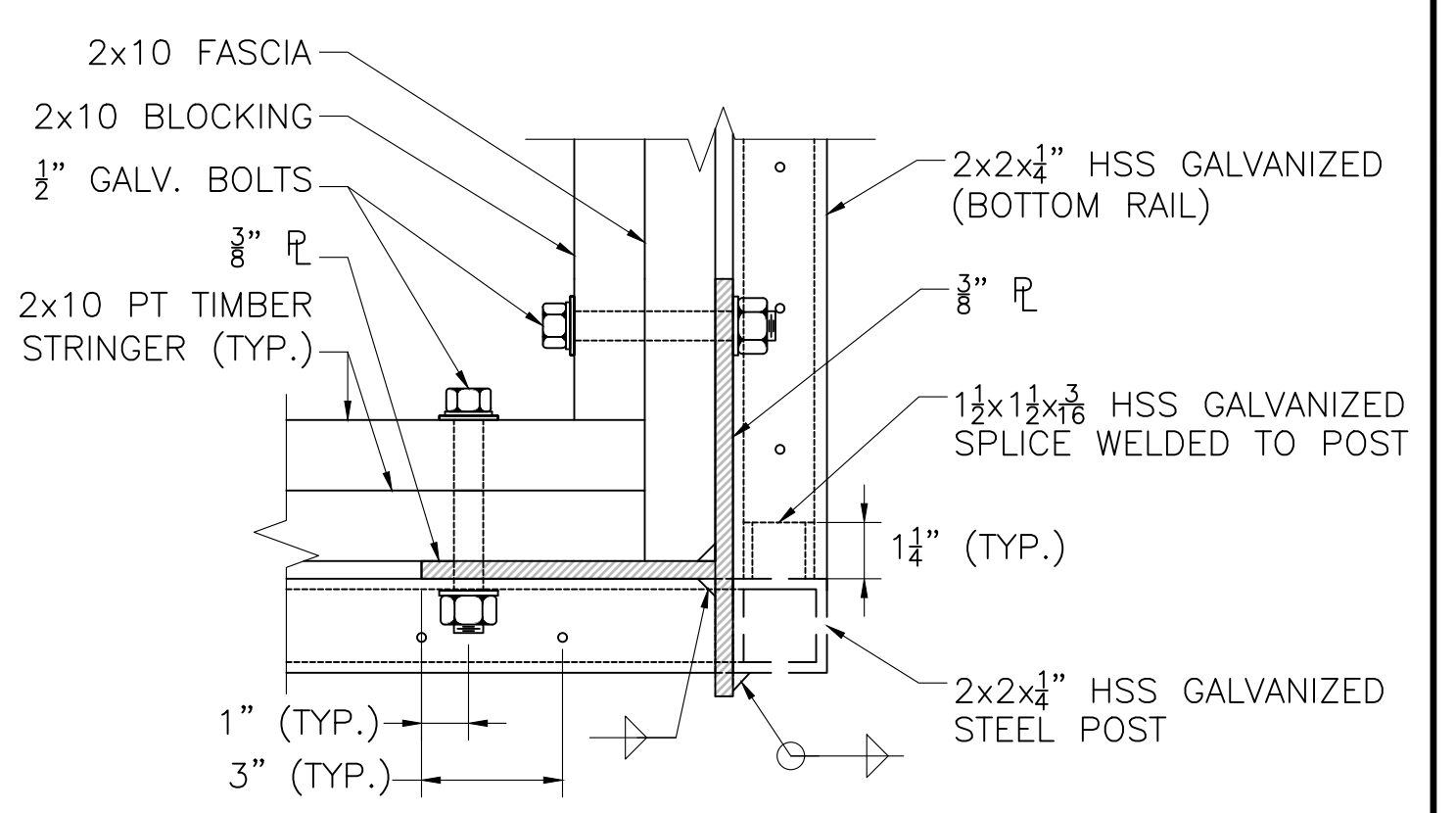
RAIL POST ANCHORAGE DETAIL
SCALE: 3" = 1'-0"



RAIL SPLICE DETAIL
SCALE: 3" = 1'-0"

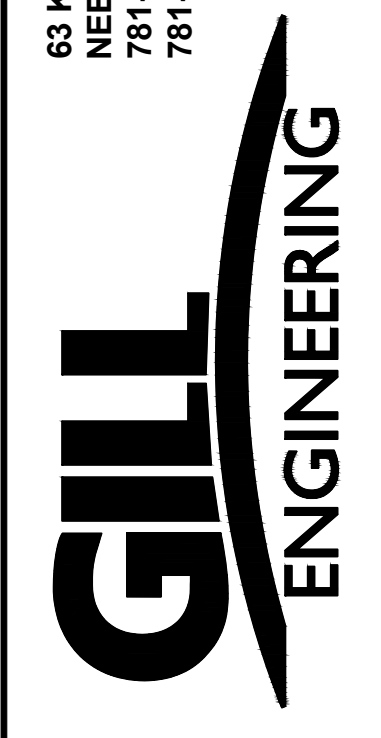


CORNER RAILING ELEVATION
SCALE: 1 1/2" = 1'-0"



OUTSIDE CORNER RAILING DETAIL
SCALE: 3" = 1'-0"

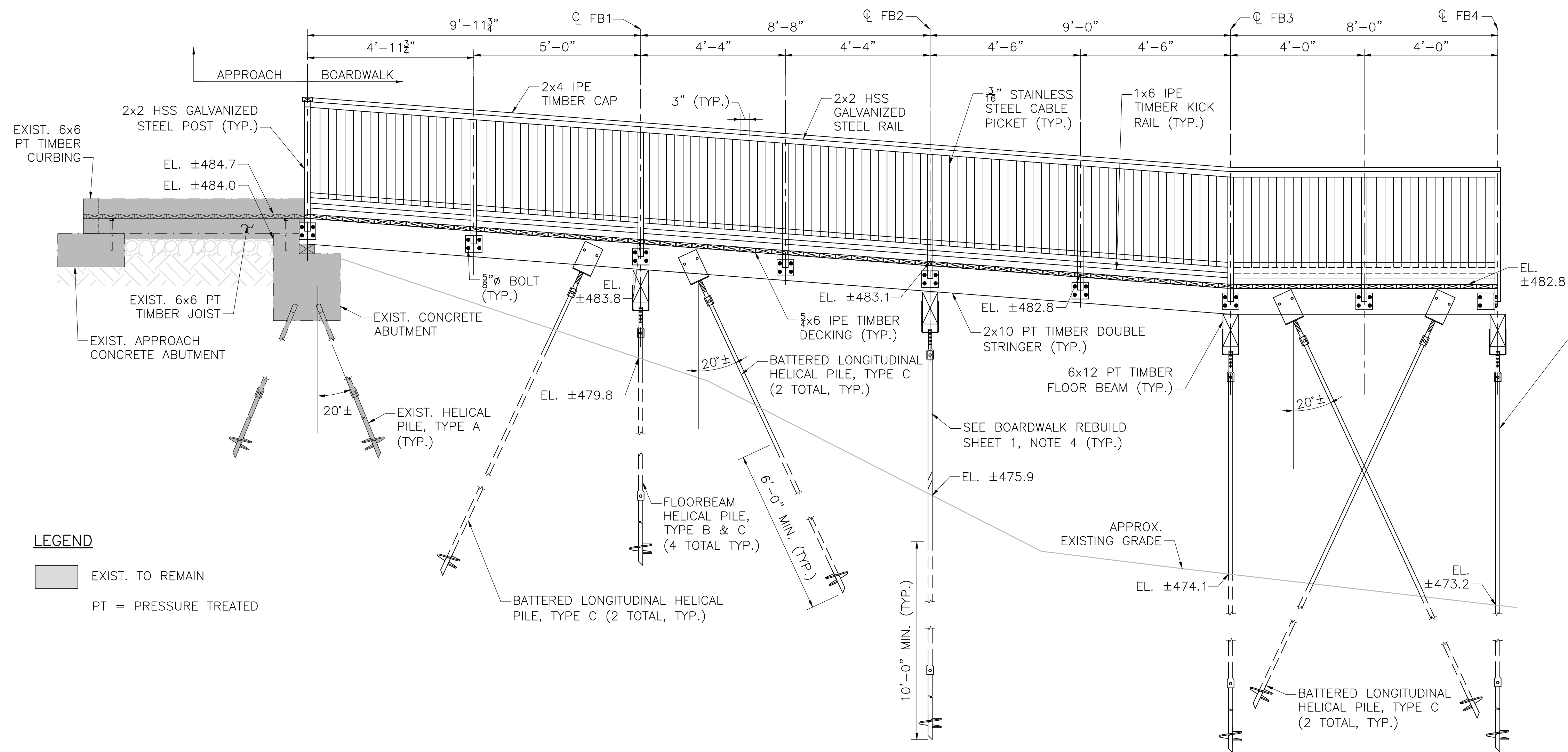
63 KENDRICK STREET
NEEDHAM, MA 02494
781-355-7100
781-355-7101 (FAX)



DATE	DRW BY	CALC BY	APPRV. BY	DESCRIPTION
4/03/23	US	ALF	KTN	ISSUE FOR CONSTRUCTION

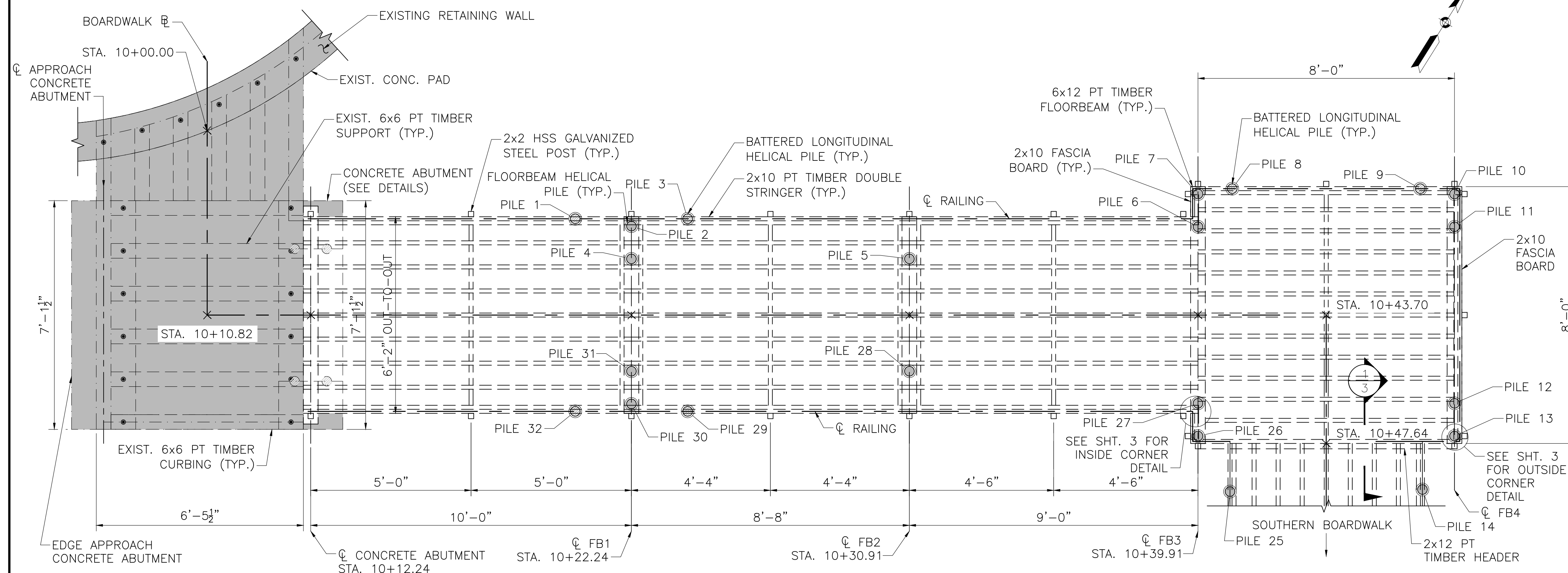
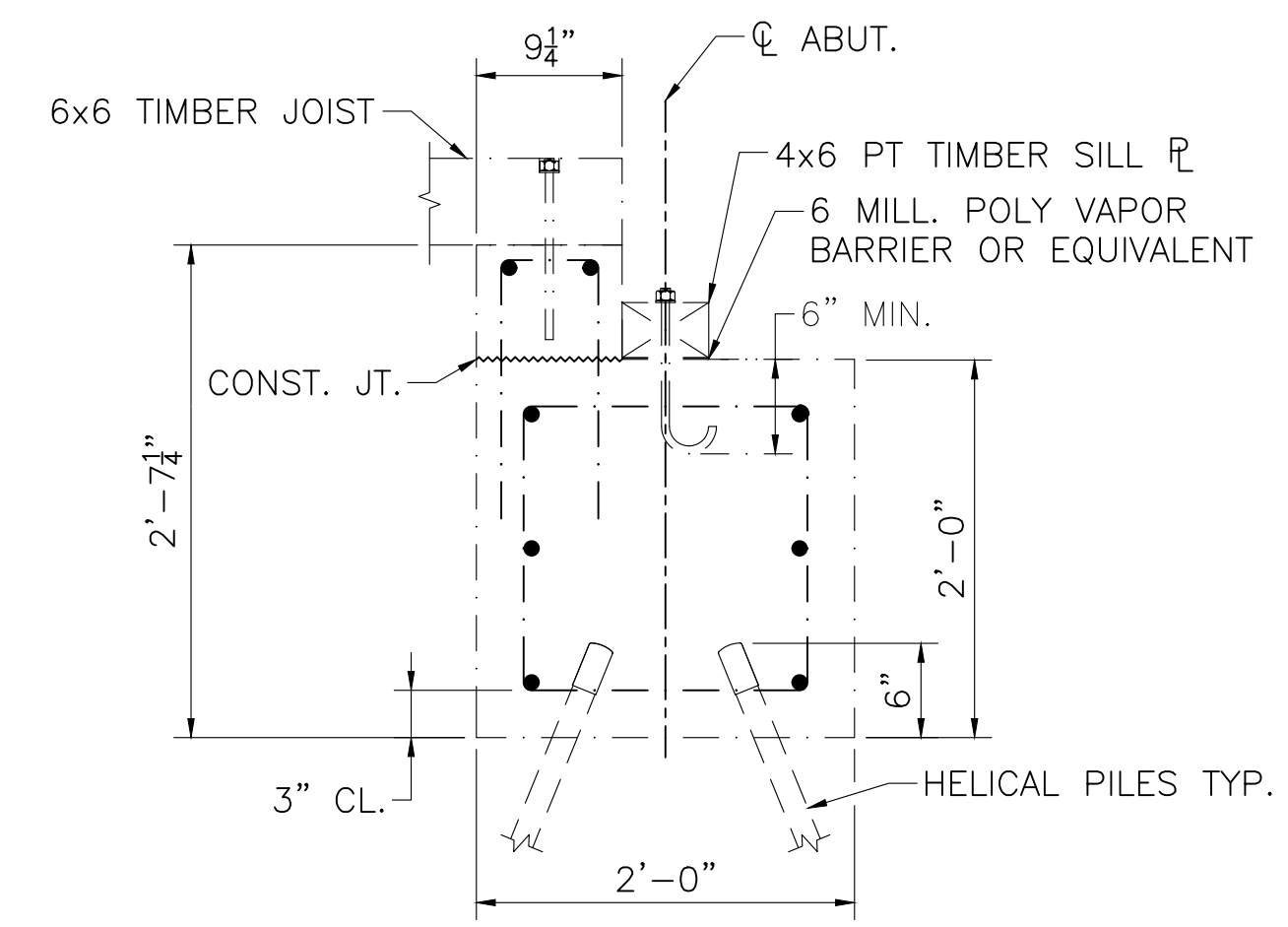
HADWEN PARK
BEALS AND THOMAS
BOARDWALK RENOVATION FOR HADWEN PARK
WORCESTER, MA

**FRAMING
PLAN, CROSS
SECTIONS, &
DETAILS**
SHEET 2 OF
4

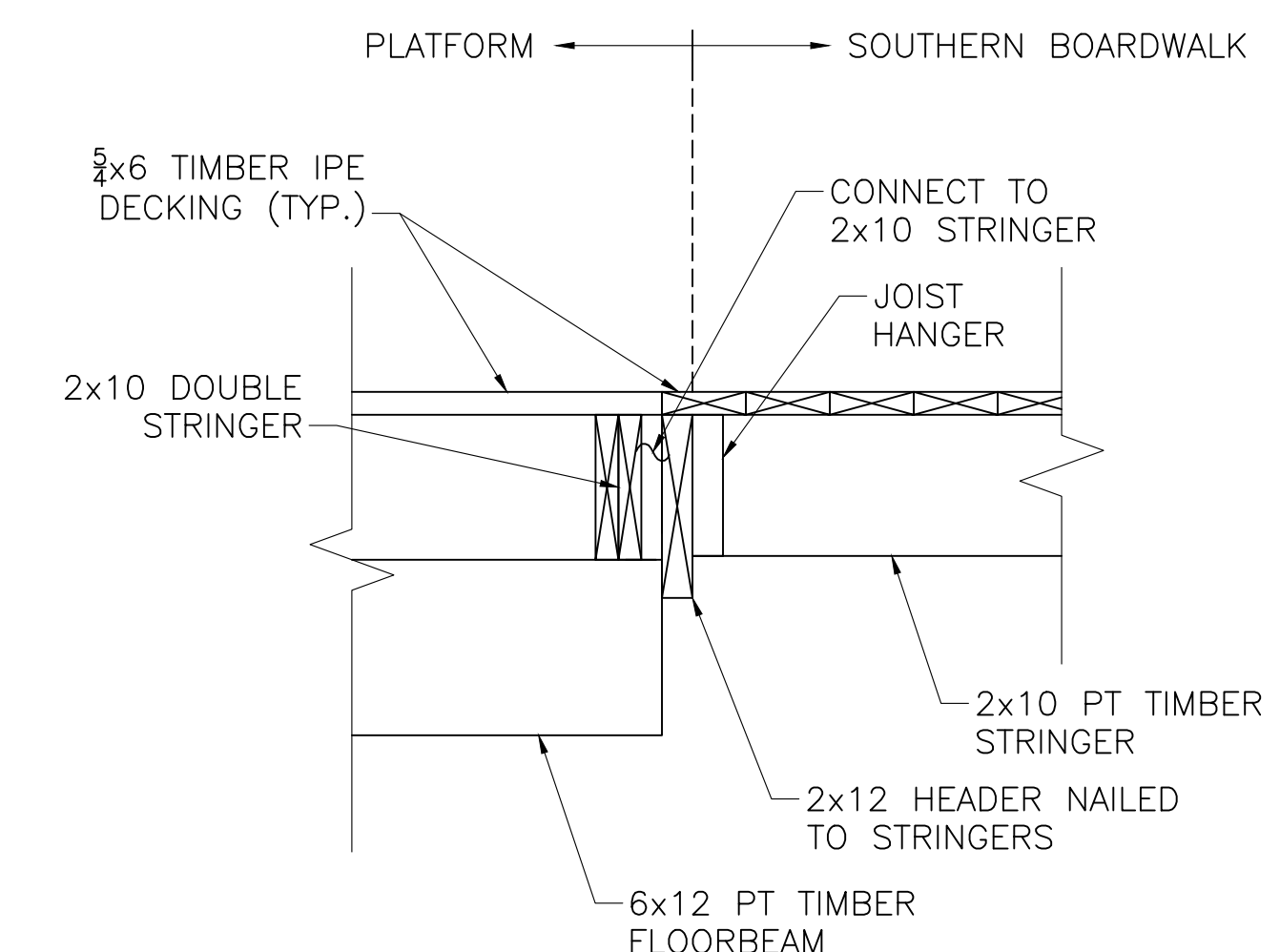


NOTES:

1. ALL HELICAL PILES ARE 1 $\frac{1}{2}$ " SQUARE SECTIONS.
2. EXISTING APPROACH TO REMAIN.

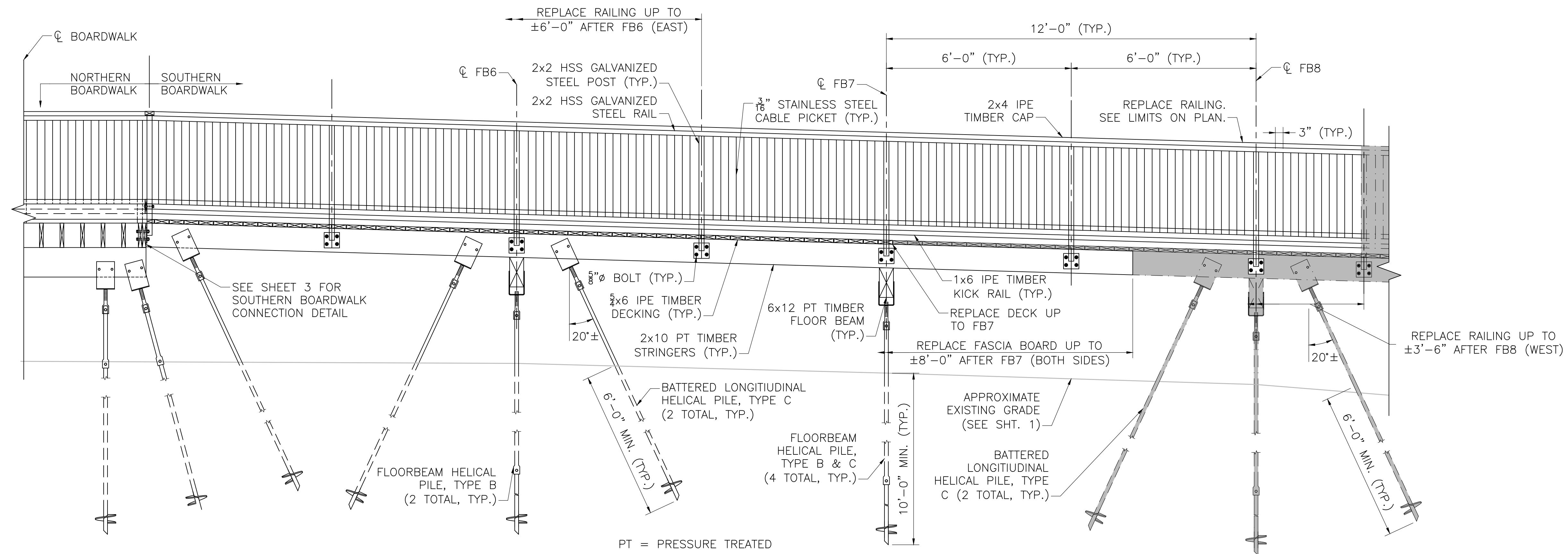


NOTE: DECKING NOT SHOWN FOR CLARITY
NORTHERN BOARDWALK PLAN
 SCALE: $\frac{1}{2}" = 1'-0"$

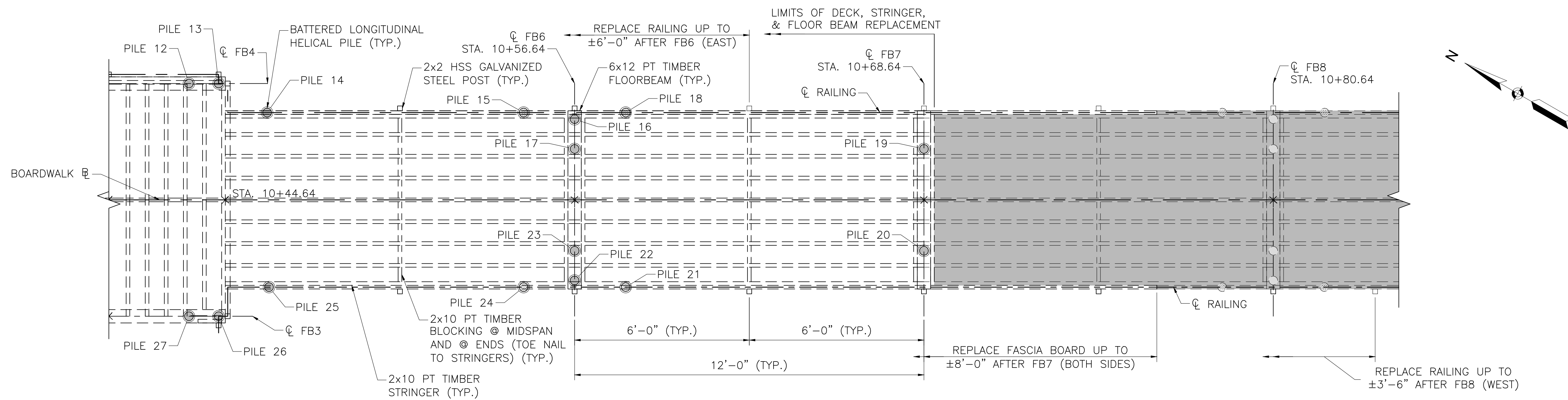


SOUTHERN BOARDWALK CONNECTION DETAIL

SCALE: 1" = 1'-0"



SOUTHERN BOARDWALK ELEVATION
SCALE: $\frac{1}{2}" = 1'-0"$



NOTE: DECKING NOT SHOWN FOR CLARITY
SOUTHERN BOARDWALK PLAN
SCALE: $\frac{1}{2}" = 1'-0"$