

THE CITY OF WALTHAM
MASSACHUSETTS

PURCHASING DEPARTMENT

Construction of the Lazazzero Park and Monsignor McCabe Playground

ADDENDUM NO. 3

December 8, 2011

CHANGES, CORRECTIONS AND CLARIFICATIONS

The attention of bidders submitting proposals for the above subject project is called to the following addendum to the specifications. The items set forth herein, whether of omission, addition, substitution or clarification are all to be included in and form a part of the proposal submitted.

THE NUMBER OF THIS ADDENDUM (**NO. 3**) MUST BE ENTERED IN THE APPROPRIATE SPACE PROVIDED AT THE END OF THE SCHEDULE OF VALUES PAGE.

ITEM NO.: 1 ANSWERS TO POSED QUESTIONS

Item No.:1 Answers to Posed Questions

1. Question: Detail 6/DT.05 for the mower strip around the playground shows a 4" reveal on the curb. Does the curb stay raised at the single and double gates, or is it flush with the adjacent walkways?

Answer: The curb (concrete mower strip) will be flush with the adjacent walkways. Please note that it should be a 6" reveal typical between the playground mower strip edge and sidewalk side only, as noted on Detail1, sheet DT.07 and not 4" as indicated on Detail 6/DT.05

2. Question: Detail 4/DT.07 show 6" min gravel base but detail 2/DT.07 shows 12". Which one is correct?

Answer: The gravel base in Detail 2 sheet DT.07 is for rubber safety surfacing "pads" under the base bid. Detail 4 sheet DT.07 is referring to poured in place rubber surfacing poured throughout the entire playground under add alternate #1 (detail5 sheet DT.07)

3. Question: Are all of the relocated boulders intended to stay on site? (There are more displayed on the demo plan than there are on the new layout plan.)

Answer: Yes, all the boulders are to stay on site and be placed with approval by the owner's representative.

4. Question: On drawing L-LM1, what is the surface in-between the cement stairs and pervious asphalt behind bleacher #2?

Answer: Extend proposed pervious pavement to the edge of cement concrete stairs. Verify layout in field.

5. Question: What is the detail for the two sets of concrete stairs on sheet L-LM1?

Answer: See attached SK-1 Detail

6. Question: On drawing L-LM1, there are two concrete block seat walls that scale out to 3'x12', can they be pieced together or do they need to be one solid unit?

Answer: They can be pieced together, refer to detail 6 sheet DT.06, three 1.5'x2'x4' conc blocks can be used for each seat wall.

7. Question: On drawing L-LM1, there are three trees to be protected adjacent to the new terrace seats. These might not be salvageable. How important are they?

Answer: All precautions should be taken to protect the trees through construction. The viability of these trees will need to be assessed during construction by the owner's representative. Concrete block placement may need to be altered to avoid tree roots. Also note that these are newly planted trees and they do not have extensive root systems yet.

8. Question: What are the invert depths for the structures on L-GD1?

Answer: Contractor shall pitch 6" pipes to drain with min. 1.5' cover on pipe. Note: detail 8 sheet DT.02 change min. invert depth from 30" to 2' or 24"

9. Question: Is the DMH on L-GD1 precast? Detail 4/DT.02 or 6/DT.02? Please advise.

Answer: DMH is Drain DMH, see detail 4 sheet DT.02

10. Question: There is no specification for the pier or boat ramp. Please provide.

Answer: The boat ramp "precast concrete treads" shall be Articulated Concrete Mats" as supplied by the following manufacturers, or approved equal:

**American Concrete Industries
1022 Minot Avenue**

Auburn ME 04210 USA
(207) 784-1388 - Fax (207) 783-4039
1-800-638-9000
(New England only)
bob.poirier@americanconcrete.com

Armortec, Inc.
9025 Centre Pointe Drive
West Chester, OH 45069
Sales: 800-338-1122
MorylJ@contech-cpi.com

SHORETEC Watson Plant
Amy Ponthier - Revetment Project Manager
amyp@premier-concrete.com
38200 LA HWY 16
Denham Springs, LA 70706
Phone: (225) 667-4545
Fax: (225) 667-7424
info@shoretec.com

Install per manufacturers specifications. Refer to attached sheet SK-2 for further detail information.

See attached Specification Sections 02459 – Timber Piles, 06051 – Wood Decking,

12. Question: There is no specification for the wood guardrail. Please provide.

Answer: See attached section 02846 for wood guardrail specification.

13. Question: Specification – Black Decorative Fence is mentioned in the table of contents but is not provided in the bid package. Please advise.

Answer: Delete section 02850 – Black Decorative Fence from the specification table of contents.

14. Question: On the west side there's a note on L-SP1 to remove pavement to accommodate the new concrete walk. Can we reuse the existing subbase for the new walk? Will the existing adjacent granite curb remain?

Answer: The subbase can be reused where possible, if it meets the project specifications. Supplement subbase as needed. The existing curb will remain.

15. Question: There are notes to "Remove brush, garbage, debris, and felled trees in wooded area to remain". To confirm, are we removing only the brush, garbage and debris?

Answer: As noted on drawing L-LM1, in all wooded areas, remove all brush, garbage, debris, felled trees, and general detritus.

16. Question: There are many notations for the fencing improvements at the existing ballfields. What is expected for “prep posts and frames for paint”? Are we also painting or is it to be done by others?

Answer: Yes, see Sheet L-LM1 for fence painting requirements.

17. Question: Are we removing the entire guardrail? Please show limits of removal.

Answer: Yes, the contractor is to remove the entire guardrail, including the steel guard rail on Shore Drive behind the concession building. The contractor is also to provide and install wood guard rail in this location.

18. Question: We are to remove the retaining wall. Does the wall have a footing? If so, are we to remove the footing or abandon in place? Are we to remove the railings on top of the wall as well?

Answer: The wall is to be removed complete. (Refer to L-SP1 for limits of removal). This is an existing segmental block wall so there are no footings to be removed. No railing will be removed, the railing is on top of the portion of the wall that is to remain.

19. Question: Spec 02220 references demo of players benches with footings and concrete bleachers, both of which I don't see on the drawings. Are we to include demo of either of these, and if so how many of each?

Answer: There is a concrete bleacher to be removed at Lazazero Park. There are two benches at McCabe that will be removed and reset on the southern field, and one that will be removed and disposed at the northern field. Refer to attached revised sheet M-LM1.

20. Question: Who is the manufacturer for the pervious/porous asphalt? Please provide a spec.

Answer: Use MassDOT 460.2 Hot Mix Asphalt Open Graded Friction Course and install per MassDOT requirements.

21. Question: What are the limits of erosion control of the straw wattle installation?

Answer: See L-LM1 for limits of silt fence or straw wattle installation. Silt fence or straw wattles may be used at the contractor's discretion.

22. Question: There is a fence shown on the side of the basketball court and extending into the outfield of the southern field. This fence is not labeled on Plan L-LM1. Are we to install this fence? If so what is the height of the fence.

Answer: Yes, the contractor shall install this fence. It is 6 foot height black vinyl chain link fence.

23. Question: What is the surface at the entrance to the fishing pier?

Answer: The surface is pervious asphalt. The hatched area between the pervious asphalt pathway and the fishing pier shall be pervious asphalt.

24. Question: At McCabe There is 40' of pipe between the two 18" DMHs on M-GD1. What size is this pipe?

Answer: The size of pipe shall be 8" pipe.

25. Question: Sheet M-LM1 says to extend irrigation into "this" area. Please provide limits of new irrigation.

Answer: Refer to the attached revised sheet M-LM1.

26. Question: Sheet M-LM1 says to connect to existing irrigation system. Please provide an as built irrigation drawing or a point of connection to tie into.

Answer: There is no as-built drawing for the irrigations system. The contractor shall tie into the trunk line of the existing system.

27. Question: Drawing M-SP1 calls out to transplant three trees. Where are the trees are to be transplanted?

Answer: Refer to the attached revised sheet M-LM1.

28. Question: Drawing M-SP1 mentions to R&D CLF fabric only. Please provide the limits to where this begins and ends.

Answer: Refer to the attached revised sheet M-LM1 for changes and clarification.

29. Question: There is an indication of a bituminous pavement walkway outside the guardrail on drawing M-EN1, but not as to the limits to be replaced. Is the entire walkway along the east side to be replaced?

Answer: Yes, the walkway is an entirely new walkway and not a replacement. Meet and match the existing walkway at both ends.

30. Question: Details 1, 2 & 3 on plan DT.06 indicate a concrete cradle under the block. The detail drawn shows a concrete slab base. Will a slab base or a cradle that surrounds the base be required? Will it be a continuous slab or cradle?

Answer: A slab base will be required and it shall be continuous.

31. Question: Can dimensions of the blocks at terraced seating be provided? The details just show width and height.

Answer: The blocks shall be 2' ht. x 1.6' width and 4' long. In detail 6 sheet DT.06, the callout that says "(4'x4'x2') should say "(2'x1.5'x4' " .

32. Question: Can a blow up or enlargement of the block areas be provided like it has been provided for McCabe park (i.e.: M-EN-1)? It is difficult to measure exactly on the small scaled drawings.

Answer: No, in the interest of time no enlargement will be supplied.

33. Question: Can you include the list of attendees from the pre-bid as well as plan holders?

Answer: These are available on the Purchasing Departments website.

34. Question: Please provide a detail for attaching the fence post on the block wall at the location of the fence west of the building on L-LM-1. Will core drilling or sleeving be required?

Answer: Core drilling or sleeving will be acceptable. Core drill shall be a min. of 1' depth pipe embedment, grouted.

35. Question: Can a plan view enlargement of the boat ramp be made available? Is it correct to use spec section 03410 Precast curb and block for this item or will a spec section be provided?

Answer: No, see answer to question 10, and attached SK-2.

36. Question: Plan L-LM-1: The limits of flat concrete pavement at the terrace seating need to be provided. If you compare this plan to the planting plan it is somewhat understandable, but how far to the L.O.W line at the right corner is it intended to go?

Answer: extend concrete pavement to the end of the wall at the corner of the splash pad.

37. Question: Plan L-LM-1: Left upper side of drawing: There is a callout to "repair fence as needed". What exactly do "as needed" mean to you? There are many interpretations that can be made.

Answer: Fence shall be repaired to a good condition. Straighten or replace bent posts and crossbars; replace hardware, caps, fabric that is broken or not connected.

38. Question: Plan L-LM-1 at the terraced seating refers to detail 1/DT.06 for the poured in place but the detail refers to precast concrete. Please clarify. Can a blow-up of the poured in place be provided with t.o.w and b.o.w elevations?

Answer: The poured in place concrete shall be built and formed on site per detail 1 sheet DT.06 requirements.

39. Question: Clarify fencing limits as follows: Plan L-SP-1:

North Field: Limits of repairs for R/R clf at dugout. Is the intent for R/R fabric to be R/R at the front or rear part of the dugout?

Answer: R & R fence at front, sides and rear of the dugout.

South field: R/D fence fabric and install new fabric: is the limit from batting cage to the limit mark or is the front of the batting cage to be included.

Answer: The front of the batting cage is not included, however include the approximate 10' length of fence between the batting cage and the end of the foul line fence.

40. Question: Will the bid date be extended to accommodate for all of the clarifications?

We are not anticipating extending the bid date at this time.

41. Question: L-SP1 Calls for R & S posts and fence framing to limits. Where does this fence end up? Are we delivering it somewhere or does it get reinstalled and if so where?

Answer: this fence gets re-installed in between the new basketball court and the outfield fence of the western field this is graphically indicated on sheet L-LM1, but not called out.

42. Question: L-LM1 This page does not seem to say what type of fencing goes where the above fencing is removed.

Answer; see answer to question 41.

43. Question: L-LM1 Can you clarify what type of fencing goes around the playground? It seems to indicate steel picket fence but the gates seem to show B.V.C.L.F.

Answer: the fence and gates are steel picket fence.

44. Question: DT.07 Detail # 3 shows a 4" steel picket fence. We assume it is 4' steel fence?

Yes, it is 4 foot height steel fence and not 4".

45. Question: L-LM1 Woodland trails refers to 4/DT.03 which calls for compacted trail mulch to see specs. We don't see anything in the spec. on the trail mulch.

The trail mulch shall be MULCH as specified in the Section 02950 Planting.

46. Question: 02888 Shade shelters are listed in two different locations in the spec. both with the same section number but with different shade structures. Which one do we use?

Answer: See "ADD/REPLACE" number 4.

47. Question: DT.04 Detail 7 Backstop for existing field refers to a net support detail 2 on sheet D-6 that doesn't seem to exist.

Answer: Omit this note.

48. Question: M-SP1 Does not seem to indicate that we are to R & D the fence on the western property line (10' CLF?) but sheet M-LM1 seems to indicate we are to install a new 6' fence with privacy slats. Are we removing the existing fence and is it in fact 10' high?

Answer: Yes, See attached revised sheet M-LM1

49. Question: M-LM1 The fence at the north western paved entrance seems to show a fence on the right hand side. What type and size of fence is this? Is this a continuation of the 6' with privacy slats?

Answer: No, the new fence ends at STA. 8+77.23. Attach new fence to existing fence at this location.

50. Question: L-PL1 The plant schedule lists AU as 8 plugs but the plan seems to show a quantity of 642.

Answer, the plant schedule is incorrect, there are 642 AU plugs.

51. Question: L-SP1 It says to R & D existing fence to limits shown but they don't show the limits. (this is adjacent to the playground).

R&D the entire length of fence in this area.

52. Question: L-SP1 There is a note for silt fence erosion control but it does not show where it goes or its limits.

Refer to Sheet L-LM1 for limits.

53. Question: M-LM1 As pointed out at the pre-bid meeting; the backstop that is getting sleeved has two different size posts. Can you clarify what size posts we need to use?

Answer: See "CLARIFICATION, CORRECTIONS AND MODIFICATIONS" number 4.

54. Question: There is confusion with the rubber surfacing. Section 02887 section 1.01 C indicates 2 add alternates. The bid from calls for 1 add alternate. The detail on the plans (DT-05 detail 3 and addenda plan DT.07) shows only a detail for wood mulch. The plans do not show a detail for the rubber surface with a concrete base. We need a better clarification of this in order to properly price this item.

Answer: There is only one add alternate. There is no "rubber surface with a concrete base". Use detail 4 sheet DT.07 for add alternate number 1, poured in place resilient rubber safety surfacing.

55. On Princeton Ave at the playground on plan L-LM-1 there will be 4 new parking spaces constructed next to the playground in Princeton Street. The site prep and new layout plans do not call out the demo of existing curbing, existing surfaces, signage, saw-cutting and matching of existing pavements. It just calls out 4 new parallel parking spaces. The sign is still shown in the middle of the parking spaces on the materials plan also. These items should be added to the plans. Also, can the existing straight curb removed and reset here or does it have to be new?

Answer: In this area, the existing curbing and existing surfaces shall be removed and disposed. Existing pavement shall be sawcut and new pavements shall meet and match existing. The sign shall be removed and re-set. The cubing shall be new granite curbing.

56. Area where trails outside of the fishing pier meet: There is a cross hatched graphic of the area where the 2 trails meet at the fishing pier on plan L-LM-1. That graphic is not indicated in the legend to indicate what surface material it will be. There is not a detail reference for that area either. A clarification is required to indicate the materials or detail to be used.

Answer: See the answer to question 45 above.

ITEM NO.: 2 ADD/REPLACE SECTIONS AND OR DRAWINGS

1. Add the attached sections to the Technical Specifications:
SECTION 01562 – DUST CONTROL
SECTION 01570 – ENVIRONMENTAL PROTECTION
SECTION 02459 – TIMBER PILES
SECTION 02677 – WETLANDS PROTECTION AND REPLICATION
SECTION 02822 – PROTECTIVE NETTING AT BALLFIELD FENCING
SECTION 02846 – WOOD GUARD RAIL
SECTION 06051 – WOOD DECKING
2. Add the attached sheets SK-1, SK-2, SK-3
3. Replace Sheet M-LM1 with the attached revised Sheet M-LM1
4. In Section 02888 2.01 a, replace “Shade America” with “Shade Systems”

Replace: the listed products with:

“Bleacher shade shelters shall be: 12’x20x13’ height, Extended Hip, Model No. R102012”

ITEM NO.: 4 CLARIFICATION, CORRECTIONS AND MODIFICATIONS

1. The contractor shall provide submittals/samples for all materials added as part of the addenda.
2. One picnic table shall be ADA accessible at each park.
3. The Backstop at McCabe we will be replacing the fabric. Repair any fence and appurtenances as necessary. All posts, rails and hardware shall be prepared and painted.
4. For the backstop on the McCabe northern field, Sleeve six 4” dia. Posts with new 5” dia. posts, and two 3” dia. posts with new 4” dia. posts.

- 5. For the relocated Shade shelter at McCabe northern field, sawcut and remove concrete and excavate as required to relocate the shade shelter. Replace concrete pad as needed.
- 6. At McCabe, the concrete pad for storage box shall be 8’x15’. The Storage box will be supplied by others.
- 7. The infield material is not stone dust as indicated on the survey, it is clay infield mix. The new clay infield mix for the refurbished infields shall be:

- a. “Native Infield Mix-Light Brown Blend” grade as manufactured by ACCUSOILS of Hooksett, NH, Read Custom Soils of Canton, MA, Holliston Sand Company of Slatersville, RI, or an approved equal product. In general, Native Infield Mix-Light Brown Blend is a combination of New England clays and sands.

- b. The sieve analysis (% by weight passing) of the material shall be as follows:

Sieve Size	Result
#4	100
10	98.9
18	4.5
35	5.5
60	8.8
140	12.3
270	16.8

- c. Hydrometer results shall be as follows:

Silt =	48.7%
Clay =	6.3%
Sand =	45.0%

Upon removal of existing surfaces and satisfactory preparation of the subsurface elevations, the Contractor shall install, roll and compact the infield mix specified to a compacted finished depth of three (3) inches. Complete installation of clay infield surfaces in conformance with the manufacturer’s recommendations or as otherwise directed. The edges of the infield mix shall meet the grades of adjacent turf areas. No ridges or depressions will be permitted at edges.

- 8. Yellow Fence top rail protector at both parks needs to be removed and reinstalled at new fabric/fence improvements.
- 9. At Lazazzero the Curbing at the parallel parking spaces shall be proposed vertical granite curbing.

SECTION 01562

DUST CONTROL

PART 1 GENERAL

1.01 WORK INCLUDED

- A. This Section specifies requirements for controlling and monitoring on-site dust generated during work of this Contract. Work activities requiring special attention to dust control include excavating, stockpiling, loading and removal of material from the Site, and earthwork. Due to known historical contamination at the Site, dust generated during the course of the Work must be controlled and kept on-site.
- B. The Contractor is responsible for control of construction related dust at all times during work of this Contract, 24 hours per day, 7 days per week, including non-working hours, weekends, and holidays.
- C. During the progress of the Work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets/work areas as necessary, to minimize creation and dispersion of dust. The Contractor shall conduct dust monitoring to ensure dust is being controlled at the Site. If dust emissions exceed action levels described in Paragraphs 1.05 of this Section, the Contractor shall be responsible for implementing additional engineering controls (e.g. additional dust suppression agents), as directed by the Engineer and described in this Section at no additional cost to the Owner. The Engineer may perform air and dust monitoring for confirmation purposes.
- D. The Contractor is responsible for daily clean-up of public roadways, adjacent driveways/parking lots, and walkways affected by work of this Contract. A wet spray power vacuum street sweeper shall be used on pavement. Dry power sweeping is prohibited.

1.02 RELATED WORK

- A. Section 01570 – Environmental Protection
- C. Section 02300 - Earthwork

1.03 REFERENCES

- A. The Contractor shall perform all work specified under this Section in accordance with the Massachusetts Department of Environmental Protection, Code of Massachusetts Regulations (CMR) 310 CMR 7.00, “Air Pollution Control Regulations”, specifically 310 CMR 7.09, “Dust, Odor, Construction, and Demolition” and in compliance with any requirements imposed by Region 1 of the Environmental Protection Agency.

- B. Work of this Contract shall be conducted in a manner that will not result in excessive particulate matter emissions, nuisance dust conditions, PM₁₀ (particulate matter with an aerodynamic diameter less than or equal to 10 microns) emissions or PM₁₀ concentrations exceeding the Massachusetts and National Ambient Air Quality Standard of 150 ug/m³ on 24-hour average basis.

1.04 QUALITY ASSURANCE

- A. The Contractor shall produce a Dust Control Plan, which will ensure the safety of passersby and the surrounding areas during the course of the Contract.

The Contractor shall monitor for dust in ambient air using Mini Ram monitors, with continuous data loggers, or equivalent, during work related to soil excavation, stockpiling and loading for off-site transport and disposal. At a minimum, one (1) dust monitor shall be located at downwind location or location determined by the Engineer. If the Dust Action Level is exceeded due to the creation and dispersion of dust by the Contractor's activities (as determined by the Engineer) additional dust suppression shall be implemented as specified herein, at no additional cost to the Owner. If the Dust Action Level is exceeded after implementation of additional dust suppression controls, additional dust monitors at the perimeter of the Limits of Work, as described below, shall be implemented by the Contractor to monitor dust at no additional cost to the Owner. Additional dust monitoring shall be performed at the perimeter of the Limits of Work at a minimum of upwind, downwind and crosswind perimeter locations (minimum of three locations).

The Engineer may conduct air monitoring with a Mini RAM monitor, or equivalent, to ensure dust is being controlled at the Site. During the course of the Work, the Contractor shall be responsible for implementing engineering controls (e.g., wetting, calcium chloride) to minimize or eliminate fugitive dust emissions. If dust exceeds action levels described below, the Contractor shall be responsible for implementing additional engineering controls (e.g. additional dust suppression agents, wind screens), as required by the Engineer. If additional wet suppression (water) and/or wind screens, barriers, or covers are required per the Engineer based on air/dust monitoring results, they shall be at no additional cost to the Owner.

- B. The Dust Control Plan shall use the following actions levels for implementation of dust suppression controls and increased personal protective equipment:

Dust Action Level: 150 micrograms per cubic meter (ug/m³)

1.06 SUBMITTALS

- A. Contractor shall submit a Dust Control Plan that outlines, in detail, the means and measures that will be implemented to comply with this Section, including dust suppression (e.g. calcium chloride, water), monitoring, prevention, cleanup, and other

measures. The Dust Control Plan shall be submitted to the Engineer within 14 days after issuance of the Notice to Proceed.

- B. Contractor shall submit to the Engineer product literature and Material Safety Data Sheets for any dust suppression wetting agents and stabilizers prior to use.

PART 2 PRODUCTS

2.01 DUST SUPPRESSION AGENTS

1. Calcium Chloride

- A. Calcium chloride shall conform to the requirements of AASHTO-M 144, Type I or Type II and Specification for Calcium Chloride, ASTM D98. The calcium chloride shall be packaged in moisture proof bags or in airtight drums with the manufacturer, name of product, net weight, and percentage of calcium chloride guaranteed by the manufacturer legibly marked on each container.
- B. Calcium chloride failing to meet the requirements of the aforementioned specifications or that which has become caked or sticky in shipment, may be rejected by the Engineer.

2. Water

- A. Water shall not be brackish and shall be free from oil, acid, and injurious alkali or vegetable matter.

PART 3 EXECUTION

3.01 CONSTRUCTION SITE DUST CONTROL – GENERAL

- A. Wet suppression shall be used to provide temporary control of dust. Several applications per day may be necessary to control dust depending upon meteorological conditions and work activity. The Contractor shall apply wet suppression on a routine basis as necessary or required by the Engineer, to control dust.
 - 1. Wet suppression consists of the application of water or a wetting agent in solution with water. Ensure wetting agent is not used on plantable soils.
 - 2. Wet suppression equipment shall consist of nozzle-equipped spray bar, sprinkler pipelines, pressure gauge, tanks, tank trucks, or other devices capable of providing regulated flow, uniform spray, and positive shut-off.

The Contractor shall provide the necessary means to retain, on-Site, all water runoff generated by dust control and dispose of such water in accordance with the requirements of the appropriate regulatory agencies. The Contractor shall be

responsible for providing water, a means of disposal, necessary permits, and all appurtenances required to control dust.

- B. Calcium chloride shall be applied when required by the Engineer and only in areas which will not be adversely affected by the application. See Section 01570 – Environmental Protection.
- C. Calcium chloride shall be used to control dust instead of wet suppression when freezing conditions exist. Calcium chloride shall be uniformly applied by a mechanical spreader at 1 ½ pounds per square yard, unless otherwise required by the Engineer. Ensure vegetation or soil to be used for vegetation is not treated.

3.02 PUBLIC ROADWAY DUST CONTROL

- A. Vehicles leaving the Site, or leaving an off-Site temporary storage location, shall not carry out mud or dirt from the Site on the vehicle body or wheels. Any foreign matter on the vehicle body or wheels shall be physically removed prior to vehicle's entering of a public roadway. Contractor shall not permit any truck to leave the Site with exterior mud or dirt that has the potential to be deposited on public roadways. Contractor shall be responsible for assuring that each vehicle is properly decontaminated prior to exiting the Site. The Contractor shall prevent carry-out or spillage of material from his/her vehicles onto public ways. The Contractor shall promptly clean up and dispose of all material and debris deposited on public ways to the Owner's satisfaction. If vehicles tracking mud and dirt off-Site, the Contractor shall be responsible for additional engineering controls such as wheel washing at no extra cost to the Owner. The Contractor shall be responsible for collecting all wash water and sediment, as required, and disposing of such materials in accordance with Specification Section 02282 – Excavation, Handling and Disposal of Contaminated Materials at no additional cost to the Owner. The Contractor shall ensure that material hauling vehicles remain on paved surfaces as much as possible. Refer also to Section 01380 – Health and Safety Requirements, for equipment decontamination and management of decontamination wastes.
- B. Vehicle mud and dirt carryout, material spills, and soil wash-out onto public roadways and walkways and other paved areas shall be cleaned up immediately at no additional cost to the Owner. The Contractor shall not create conditions that allow silt laden runoff to run onto public ways. Any silt and debris deposited onto public ways by runoff shall be cleaned up to the satisfaction of the Owner and means shall be employed to prevent recurrence of run-off deposits at no additional expense to the Owner.
- C. Haul truck cargo areas shall be securely covered during material transport on public roadways.
- D. The Contractor is responsible for daily clean-up of public roadways and walkways affected by work of this Contract. A wet spray power vacuum street sweeper shall be

used on paved roadway. Dry power sweeping is prohibited. Costs associated with cleaning/sweeping of public roadways is considered incidental to the Project.

3.03 CONTROL OF EARTHWORK DUST

- A. During batch drop operations (i.e., earthwork with front-end loader, clamshell bucket, or backhoe) the free drop height of excavated or aggregate material shall be reduced as much as practical to minimize the generation of dust.
- B. To prevent spills during transport, freeboard space shall be maintained between the material load and the top of the truck cargo bed rail.

3.04 CONTROL OF STOCKPILE DUST

- A. At a minimum the Contractor shall use the following methods to control dust and wind erosion of active and inactive stockpiles:
 - 1. Polyethylene tarps on stockpiles shall be placed both below and on top of stockpiles, and secured with sandbags or an equivalent method to prevent the cover from being dislodged by the wind. The Contractor shall repair or replace covers whenever damaged or dislodged, at no additional cost to the Owner.
 - 2. The tarps shall be bermed 12" high at all edges to prevent any infiltration of storm water or exfiltration of leachate.
- B. The methods to be used shall be submitted to the Engineer as part of the Dust Control Plan. Refer to the requirements of Section 02282 – Excavation, Handling and Disposal of Contaminated Material for additional information related to stockpiled excavated materials.

END OF SECTION

SECTION 01570

ENVIRONMENTAL PROTECTION

1. Description

- A. The work covered by this section of the specifications consists of furnishing all labor, materials, tools and equipment and performing all work required for the prevention of environmental pollution during and as a result of construction operations under this contract.
- B. The requirements set forth in this section of the specifications apply to construction in and adjacent to wetlands, unless otherwise specifically stated.
- C. All work under this Contract shall be in accordance with the Conservation Commissions' Order of Conditions as well as any conditional requirements applied, all of which are will be provided when available.

2. Notification

The Engineer or Owner will notify the Contractor in writing of any non-compliance with the foregoing provisions. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor or his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails to act promptly, the Engineer may order stoppage of all or part of the work until satisfactory corrective action has been taken. No claim for an extension of time or for excess costs or damage incurred by the Contractor as a result of time lost due to any stop work orders shall be made unless it was later determined that the Contractor was in compliance.

3. Implementation

- A. Prior to commencement of work, the Contractor shall meet with representatives of the Engineer to develop mutual understandings relative to compliance of the environmental protection program.
- B. **SUBMITTALS:** The Contractor shall submit for approval one set of details and literature fully describing environmental protection methods to be employed in carrying out construction activities within 100 feet of wetlands or across areas designated as wetlands. Refer to Special Conditions – Contractor’s Shop and Working Drawings.

4. Area of Construction Activity

As far as possible, the Contractor shall confine his construction activities to those areas defined by the plans and specifications. All land resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their present condition or be restored to a condition after completion of construction at least equal to that which existed prior to work under this contract.

5. Protection of Water Resources

- A. The Contractor shall not pollute streams, lakes or reservoirs with fuels, oils, bitumens, calcium chloride, acids or other harmful materials. It is the Contractor's responsibility to comply with all applicable Federal, State, County and Municipal laws regarding pollution of rivers and streams.
- B. Special measures should be taken to insure against spillage of any pollutants into public waters.

6. Construction in Areas Designated as Wetlands on the Drawings

- A. As far as possible, the Contractor shall make every effort to minimize disturbance within areas designated as wetlands.
- B. The Contractor shall perform his work in such a way that these areas are left in the condition existing prior to construction.
- C. Excavated materials shall not be permanently placed or temporarily stored in areas designated as wetlands. Temporary storage areas for excavated material shall be as directed by the Engineer.
- D. The use of a temporary gravel roadway or access whatsoever in the wetlands area is not acceptable.

7. Protecting and Minimizing Exposed Areas

- A. The Contractor shall limit the area of land which is exposed and free from vegetation during construction. In areas where the period of exposure will be greater than two (2) months, temporary vegetation, mulching or other protective measures shall be provided as specified.
- B. The Contractor shall take account of the conditions of the soil where temporary cover crop will be used to insure that materials used for temporary vegetation are adaptive to the sediment control. Materials to be used for temporary vegetation shall be approved by the Engineer.

8. Location of Storage Areas

- A. The location of the Contractor's storage areas for equipment and/or materials shall be upon cleared portions of the job site or areas to be cleared as a part of this project, and shall require written approval of the Engineer. Plans showing storage facilities for equipment and materials shall be submitted for approval of the Engineer.
- B. No excavated materials or materials used in backfill operations shall be deposited within a minimum distance of one hundred (100) feet of any watercourse or any drainage

facility. Adequate measures for erosion and sediment control such as the placement of silt fence around the downstream perimeter of stockpiles shall be employed to protect any downstream areas from siltation. There shall be no use of baled hay or straw.

- C. There shall be no storage of equipment or materials in areas designated as wetlands.
- D. The Engineer may designate a particular area or areas where the Contractor may store materials.

9. Protection of Landscape

- A. This work applies to all landscape protection within the project area.
- B. The Contractor shall not deface, injure, or destroy trees or shrubs nor remove or cut them without written authority from the Owner. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorages unless specifically authorized by the Engineer. Excavating machinery and cranes shall be of suitable type and be operated with care to prevent injury to trees that are not to be removed, particularly overhanging branches and limbs. The Contractor shall, in any event, be responsible for any damage resulting from such use.
- C. Branches, limbs, and roots shall not be cut except by permission of the Engineer. All cutting shall be smoothly and neatly done without splitting or crushing. When there is unavoidable injury to branches, limbs and trunks of trees, the injured portions shall be neatly trimmed and covered with an application of grafting wax or tree healing paint as directed.
- D. Place tree protection barrier as indicated on the drawings or around trees to remain within the construction limits that are adjacent to proposed improvements. Any trees or landscape feature scarred or damaged by the Contractor's equipment or operations shall be restored as nearly as possible to its original condition at the expense of the Contractor. The Engineer will decide what method of restoration shall be used, and whether damaged trees shall be treated and healed or removed and disposed of under the provisions of Section 02230, CLEARING AND GRUBBING.
- E. Cultivated hedges, shrubs, and plants which could be injured by the Contractor's operations shall be protected by suitable means or shall be dug up, balled and temporarily replanted and maintained. After construction operations have been substantially completed, they shall be replanted in their original positions and cared for until growth is re-established. If cultivated hedges, shrubs, and plants are injured to such a degree as to affect their growth or diminish their beauty or usefulness, they shall be replaced by items of a kind and quality at least equal to that existing at the start of the work.

10. Clearing and Grubbing

- A. The Contractor shall clear and grub only on the Owner's land or the Owner's easements, and only the area required for construction operations, as approved by the Engineer.
- B. The Contractor shall not remove trees in the Owner's temporary easements without permission of the Engineer.

11. Discharge of Dewatering Operations

- A. Any water that is pumped and discharged from the trench and/or excavation as part of the Contractor's water handling shall be filtered by an approved method prior to its discharge into a receiving water or drainage system.
- B. Under no circumstances shall the Contractor discharge water to the areas designated as wetlands. When constructing in a wetlands area, the Contractor shall discharge water from dewatering operations directly to the nearest drainage system, stream, or waterway after filtering by an approved method.
- C. The pumped water shall be filtered through baled hay, a vegetative filter strip or a vegetated channel to trap sediment occurring as a result of the construction operations. The vegetated channel shall be constructed such that the discharge flow rate shall not exceed a velocity of more than 1 foot per second. Accumulated sediment shall be cleared from the channel periodically.

12. Dust Control

- A. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, to minimize creation and dispersion of dust. The Contractor shall conduct dust monitoring to ensure that dust generated during site activities are being controlled onsite in accordance Specification Section 01562. If the Engineer decides it is necessary to use calcium chloride for more effective dust control, the Contractor shall furnish and spread the material, as directed. Calcium chloride shall be as specified under Section 01562, DUST CONTROL.
- B. Calcium Chloride shall not be used for dust control within a drainage basin or in the vicinity of any source of potable water.

13. Separation and Replacement of Topsoil

- A. Topsoil shall be carefully removed from improvement areas where earthwork and excavations are to be made, and separately stored to be used again at the discretion of the contractor and or owner or as directed. The topsoil shall be stored in an area acceptable to the Engineer and adequate measures shall be employed to prevent erosion of said material.

14. Silt Fence

- A. Where indicated on the drawings or where required by the Engineer, the Contractor shall erect and maintain a temporary silt fence or straw wattles. In areas designated as wetlands, the Contractor shall line the limits of the construction easement with a silt fence. The silt fence shall be used specifically to contain sediment from runoff water and to minimize environmental damage caused by construction.
- B. The silt fence shall consist of a 3-foot wide continuous length sediment control fabric, stitched to a 22-foot wide, continuous length support netting, and stapled to preweathered oak posts installed as shown on the drawings. The oak posts shall be 1½-inches by 1½-inches (Minimum Dimension) by 48 inches and shall be tapered. The support netting shall be industrial strength polypropylene. The bottom edge of the sediment control fabric shall be buried as shown on the drawings. The sediment control fabric shall conform to the following properties:

Property	Value	Test Method
1. Grab Strength (lbs.)	124	ASTM D-4632
2. Elongation (%)	15%	ASTM D-4632
3. Puncture Strength (lbs.)	65	ASTM D-4833
4. Burst Strength (psi)	300	ASTM D-3786
5. Trapezoid Tear (lbs.)	60	ASTM D-4533
6. Equivalent Opening Size (U.S. Sieve)	No. 30	ASTM D-4571
7. Permittivity (sec ⁻¹)	0.10	ASTM D-4491
8. Water Flow Rate (gal/min/sf.)	10	ASTM D-4491
9. UV Resistance (%)	70	ASTM D-4355

15. Inlet Protection in Paved and Non-Paved Areas

- A. On all drain inlets affected by the project disturbance or where required by the Engineer, the Contractor shall erect and maintain a temporary inlet protection.
- B. The Contractor shall install catch basin filter bags in roadways and parking lots with and adjacent to the construction area.
- C. The contractor shall also install filter bags as shown in drawings, catch basins and other proposed structures to trap sediment and to prevent sediment from clogging drainage systems.
- D. The Contractor shall be responsible for cleaning silt in drainage structures within and adjacent to the project area.

END OF SECTION

SECTION 02846

WOOD GUARDRAILS

PART I - GENERAL

1.01 SCOPE OF WORK

- a. Under this Section the Contractor shall furnish all labor, materials, equipment and transportation required to furnish and install wood guardrails & wood bollards as located and detailed in the Contract Drawings and as specified herein.
- b. All wood guardrail & wood bollard locations shall be marked out in the field for review and approval by the Town Representative prior to installations.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- a. Reference to the standards, specifications and test of technical societies, organizations, and governmental bodies as made in the contract documents.
 - 1. "Standard Grading Rules for West Coast Lumber".
 - 2. AASHTO M 133: Preservatives and Pressure Treatment Processes for Timber
 - 3. AASHTO M 168: Wood Products
 - 4. AASHTO Standard Specifications for Highways and Bridges
 - 5. American Wood-Preservers' Association (AWPA) Book of Standards
 - 6. Western Wood Products Association (WWPA) Standard Grading Rules

1.03 SHOP DRAWINGS

- a. Shop drawings or manufacturer's specifications shall be submitted in accordance with the provisions of the SPECIAL CONDITIONS.
- b. Submittals shall be made for all work furnished in this Section.

1.04 SAMPLES

- a. Submit the following samples in accordance with the provisions of the SPECIAL CONDITIONS.
 - 1. Submit samples and descriptive literature of all items specified by the Engineer.

PART II - MATERIALS

2.01 WOOD GUARDRAILS

- a. All timber shall be Northern white cedar-planed smooth, free of heart centers, and shall be of the finest structural appearance. No planer chips are allowed in dressing. To minimize slivering, timbers of this grade must be free of wave, and edges must be eased with 1/2" bevel 45° radius (square edges are not allowed). Except as otherwise noted, characteristics and limiting provisions are in accordance with paragraph 131-A, Standard Grading Rules for West Coast Lumber. Timbers shall be of the sizes indicated on the drawings.
- b. After all fabrication processes are complete; each wood member will be treated with two (2) dip coats of clear Cuprinol No. 20, or approved equal. Only preservatives deemed suitable by USEPA for skin contact may be used in the wood members.
- c. All hardware shall be hot-dipped galvanized in accordance with ASTM-A153.
- d. An "ASSOCIATION INSPECTION CERTIFICATE" shall be furnished by the Contractor, at his own expense, certifying that the grade and quality is fully in accordance with the requirements of the specifications. This certificate shall be issued by the association whose grading rules govern this particular class of wood. Wood that is "GRADE MARKED" by an accredited association will be accepted in lieu of the "ASSOCIATION INSPECTION CERTIFICATE".

PART III - EXECUTION

3.01 WOOD GUARDRAILS

- a. The installation of the wood guardrails shall be in accordance with the dimensions and details indicated on the Contract Drawings and with these Specifications. All cuts made in the field shall be painted with two (2) brush coats of the wood preservative as specified.
- b. Prior to installation, the contractor shall field locate limits of the wood guardrail. Once the Owner has approved the location, the contractor shall install the wood guardrail.
- c. Posts shall be set plumb, in hand or mechanically dug holes. Post holes shall be backfilled with approved materials placed in layers no greater than 12 inches and compacted to 95% density.
- d. Rails shall be installed as shown in details.

- e. All hardware shall conform to ASTM A307 requirements and shall be galvanized per ASTM 153.

PART IV - GUARANTEE AND ACCEPTANCE

- a. Any defective elements shall be replaced in part or whole by the Contractor at no cost to the Owner.

--- END OF SECTION ---

SECTION 02822

PROTECTIVE NETTING AT BALLFIELD FENCING

PART I - GENERAL

1.01 SCOPE OF WORK

- a. Under this Section the Contractor shall furnish all labor, materials, equipment and transportation required to furnish and install protective netting in compliance with the contract drawings and all requirements described herein.
- b. In general, the protective netting is incorporated at along the western property line at Mons. McCabe Playground.

1.02 REFERENCE STANDARDS AND SPECIFICATIONS

- a. Reference to the standards, specifications and test of technical societies, organizations, and governmental bodies as made in the contract documents.
 1. Refer to Section 02820– Black Vinyl Clad Chain Link Fence for all requirements related to the Black Vinyl Netting Posts.

1.03 SHOP DRAWINGS

- a. Shop drawings or manufacturer's specifications shall be submitted in accordance with the provisions of the Special Conditions Section of the Contract Specifications.
- b. Submittals shall be made for all work furnished in this Section.

1.04 SAMPLES

- a. Submit the following samples in accordance with the provisions of the SPECIAL CONDITIONS.
 1. Submit samples and descriptive literature of all items specified by the Engineer.

PART II - MATERIALS

2.01 PROTECTIVE NETTING

- a. Netting shall be #21, 1 3/4" black weather treated nylon with a 3/8" nylon rope border. For each run of netting attach a 1/4" galvanized AC cable. At the top of

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the netting runs, attach cable to posts using appropriate turnbuckles or other appurtenances as approved by the City. Attach all netting to the wire with a #102 galvanized snap link. At the bottom of netting runs, attach netting to fence rails with clips or ties in an approved manner.

- b. Netting should be provided in the sizes required to provide a minimum height of protection as stipulate on the details.

2.02 BLACK VINYL CLAD CHAIN LINK FENCE POSTS FOR PROTECTIVE NETTING

- a. Black vinyl chain link fence posts shall be as indicated on the details. Refer to pipe requirements as described in Section 02820 – Black Vinyl Chain Link Fence.

PART III - EXECUTION

3.01 PROTECTIVE NETTING AND VINYL CLAD CHAIN LINK FENCE POSTS

- a. The installation of the protective netting and vinyl clad chain link fence posts and all related appurtenances shall be accomplished in accordance with these specifications by individuals experienced in the fencing trade.
- b. Netting posts shall be installed at the start and end of fencing/netting runs and at other alternating fence line post locations as indicated on plans.
- c. Furnish all netting posts with appropriate caps and secure in place, in compliance with Section 02820 – Black Vinyl Chain Link Fence.

PART IV - GUARANTEE AND ACCEPTANCE

- a. The Contractor at no cost to the Owner shall replace any defective elements in part or whole.

END OF SECTION

SECTION 02810

IRRIGATION

PART 1-GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. The work of this section applies to the expansion of the irrigation system at Monsignor McCabe Playground.
- B. Section Includes:
 - 1. Piping.
 - 2. Manual valves.
 - 3. Automatic control valves.
 - 4. Sprinklers.
 - 5. Quick couplers.
 - 6. Boxes for automatic control valves.
 - 7. Wiring and connections.

1.03 DEFINITIONS

- A. Circuit Piping: Downstream from control valves to sprinklers, specialties, and drain valves. Piping is under pressure during flow.
- B. Drain Piping: Downstream from circuit-piping drain valves. Piping is not under pressure.
- C. Main Piping: Downstream from point of connection to water distribution piping to, and including, control valves. Piping is under water-distribution-system pressure.
- D. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control, signaling power-limited circuits.

1.04 PERFORMANCE REQUIREMENTS

- A. A design-build of a single zone of rotary sprinklers attached to an existing irrigation system. Locate and attach new valve, sprinklers, pipes, wires, and all related items to the existing mainline. Existing controller has an open station. Run new wires from controller to valve.
- B. Location of Sprinklers and Specialties: Avoid plantings and obstructions such as signs and light standards. Design 100 percent coverage irrigation system, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.
- C. Minimum Working Pressures: The following are minimum pressure requirements for piping, valves, and specialties unless otherwise indicated:
 - 1. Irrigation Main Piping: [200 psig (1380 kPa)]
 - 2. Circuit Piping: [200 psig (1035 kPa)]

1.05 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories.
- B. Delegated-Design Submittal: For irrigation systems indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Coordination Drawings: Irrigation systems, drawn to scale, on which components are shown and coordinated with each other, using input from Installers of the items involved. Also include adjustments necessary to avoid plantings and obstructions such as signs and light standards.
- D. Qualification Data: For qualified Installer.
- E. Operation and Maintenance Data: For sprinklers controllers and automatic control valves to include in operation and maintenance manuals.

1.06 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers that include a certified irrigation designer qualified by The Irrigation Association.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.
- B. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.08 PROJECT CONDITIONS

- A. Interruption of Existing Water Service: Do not interrupt water service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water service according to requirements indicated:
 - 1. Notify **Construction Manager** no fewer than **two** days in advance of proposed interruption of water service.
 - 2. Do not proceed with interruption of water service without **Construction Manager's** written permission.

PART 2 - PRODUCTS

2.01 PIPES, TUBES, AND FITTINGS

- A. Comply with requirements in the piping schedule for applications of pipe, tube, and fitting materials, and for joining methods for specific services, service locations, and pipe sizes.
- B. PVC Pipe: ASTM D 1785, PVC 1120 compound, SDR 21, Class 200.
 - 1. PVC Socket Fittings: ASTM D 2466, Schedule 40.
 - 2. PVC Threaded Fittings: ASTM D 2464, Schedule 80.
 - 3. PVC Socket Unions: Construction similar to MSS SP-107, except both headpiece and tailpiece shall be PVC with socket ends

2.02 PIPING JOINING MATERIALS

- A. Solvent Cements for Joining PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
- B. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer unless otherwise indicated.

2.03 MANUAL VALVES

C. Bronze Gate Valves:

1. Manufacturers: Subject to compliance with requirements.
2. Basis-of-Design Product: Subject to compliance with requirements, provide or comparable product by one of the following:
 - a. American Valve, Inc.
 - b. NIBCO INC.
 - c. Aqua Valve Co.
3. Description:
 - a. Standard: MSS SP-80, Type 2.
 - b. Class: 125.
 - c. CWP Rating: 200 psig (1380 kPa).
 - d. Body Material: ASTM B 62 bronze with integral seat and screw-in bonnet.
 - e. Ends: Threaded or solder joint.
 - f. Stem: Bronze, nonrising.
 - g. Disc: Solid wedge; bronze.
 - h. Packing: Asbestos free.
 - i. Handwheel: Malleable iron, bronze, or aluminum.

- D. Operating Wrenches for Iron Gate Valve Casings: Furnish one (1) steel, tee-handle operating wrench (es) with one pointed end, stem of length to operate deepest buried valve, and socket matching valve operating nut for Project.

2.04 AUTOMATIC CONTROL VALVES

A. Plastic, Automatic Control Valves:

1. Manufacturers: Subject to compliance with requirements.
2. Basis-of-Design Product: Subject to compliance with requirements, provide or comparable product by one of the following:
 - a. Hunter Industries Incorporated.
 - b. Irritrol Systems.
 - c. Rain Bird Corporation.
 - d. Toro Company (The); Irrigation Division.
3. Description: Molded-plastic body, normally closed, diaphragm type with manual-flow adjustment, and operated by 24-V ac solenoid.

2.05 SPRINKLERS

- A. General Requirements: Designed for uniform coverage over entire spray area indicated at available water pressure.

B. Medium Rotary Sprinklers:

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1. Manufacturers: Subject to compliance with requirements.
2. Basis-of-Design Product: Subject to compliance with requirements, provide or comparable product by one of the following:
 - a. Hunter Industries Incorporated.
 - b. Irritrol Systems.
 - c. Rain Bird Corporation.
 - d. Toro Company (The); Irrigation Division.
3. Description:
 - a. Body Material: ABS.
 - b. Nozzle: Plastic
 - c. Retraction Spring: Stainless steel.
 - d. Internal Parts: Corrosion resistant.
4. Capacities and Characteristics:
 - a. Flow: 1.12 to 9.8 GPM
 - b. Pop-up Height: 4" aboveground to nozzle.
 - c. Arc: 0 to 360 degrees.
 - d. Radius: 29' to 46'
 - e. Inlet: 3/4" IPS

2.06 QUICK COUPLERS

- A. Manufacturers: Subject to compliance with requirements.
- B. Basis-of-Design Product: Subject to compliance with requirements, provide or comparable product by one of the following:
 1. Buckner; a division of Storm Manufacturing Group Inc.
 2. Hunter Industries Incorporated.
 3. Rain Bird Corporation.
 4. Toro Company (The); Irrigation Division.
- C. Description: Factory-fabricated, bronze or brass, two-piece assembly. Include coupler water-seal valve; removable upper body with spring-loaded or weighted, rubber-covered cap; hose swivel with ASME B1.20.7, 3/4-11.5NH threads for garden hose on outlet; and operating key.
 1. Locking-Top Option: Vandal-resistant locking feature. Include **two** matching key(s).

2.07 BOXES FOR AUTOMATIC CONTROL VALVES

- A. Plastic Boxes:
 1. Manufacturers: Subject to compliance with requirements.
 - a. Armorcast Products Company.

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- b. Carson Industries LLC.
 - c. Orbit Irrigation Products, Inc.
 - d. Dura Plastics.
2. Description: Box and cover, with open bottom and openings for piping; designed for installing flush with grade.
- a. Size: As required for valves and service.
 - b. Shape: Rectangular
 - c. Sidewall Material: PE.
 - d. Cover Material: PE.
- 1) Lettering: Valve Box or Irrigation

PART 3 - EXECUTION

3.01 EARTHWORK

- A. Excavating, trenching, and backfilling are specified in Division 2 Section "Earthwork."
- B. Install warning tape directly above pressure piping, **12 inches** below finished grades, except 6 inches below subgrade under pavement and slabs.
- C. Provide minimum cover over top of underground piping according to the following:
 - 1. Irrigation Main Piping: Minimum depth of 18 to 24 **inches** below finished grade, or not less than **18 inches**.
 - 2. Circuit Piping: **12 inches**

3.02 PREPARATION

- A. Set stakes to identify locations of proposed irrigation system. Obtain Architect's approval before excavation.

3.03 PIPING INSTALLATION

- A. Location and Arrangement: Drawings indicate location and arrangement of piping systems. Install piping as indicated unless deviations are approved on Coordination Drawings.
- B. Install piping at minimum uniform slope of 0.5 percent down toward drain valves.
- C. Install piping free of sags and bends.
- D. Install groups of pipes parallel to each other, spaced to permit valve servicing.

- E. Install fittings for changes in direction and branch connections.
- F. Install flanges adjacent to valves and to final connections to other components with NPS 2-1/2 (DN 65) or larger pipe connection.
- G. Install underground thermoplastic piping according to ASTM D 2774[**and ASTM F 690**].
- H. Install expansion loops in control-valve boxes for plastic piping.
- I. Lay piping on solid subbase, uniformly sloped without humps or depressions.
- J. Install PVC piping in dry weather when temperature is above 40 deg F (5 deg C). Allow joints to cure at least 24 hours at temperatures above 40 deg F (5 deg C) before testing.
- K. Install transition fittings for plastic-to-metal pipe connections according to the following:
 - 1. Underground Piping:
 - a. NPS 1-1/2 (DN 40) and Smaller: Plastic-to-metal transition fittings.
 - b. NPS 2 (DN 50) and Larger: AWWA transition couplings.
 - 2. Aboveground Piping:
 - a. NPS 2 (DN 50) and Smaller: Plastic-to-metal transition [**fittings**] [**unions**].
 - b. NPS 2 (DN 50) and Larger: Use dielectric flange kits with one plastic flange.
- L. Install dielectric fittings for dissimilar-metal pipe connections according to the following:
 - 1. Underground Piping:
 - a. NPS 2 (DN 50) and Smaller: Dielectric coupling or dielectric nipple.
 - b. NPS 2-1/2 (DN 65) and Larger: Prohibited except in control-valve box.
 - 2. Aboveground Piping:
 - a. NPS 2 (DN 50) and Smaller: Dielectric union.
 - b. NPS 2-1/2 to NPS 4 (DN 65 to DN 100): Dielectric flange.
 - c. NPS 5 (DN 125) and Larger: Dielectric flange kit.
 - 3. Piping in Control-Valve Boxes:
 - a. NPS 2 (DN 50) and Smaller: Dielectric union.
 - b. NPS 2-1/2 to NPS 4 (DN 65 to DN 100): Dielectric flange.
 - c. NPS 5 (DN 125) and Larger: Dielectric flange kit.

3.04 JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.
- C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 - 1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.
- D. PVC Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
 - 1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
 - 2. PVC Pressure Piping: Join schedule number, ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
 - 3. PVC Nonpressure Piping: Join according to ASTM D 2855.

3.05 VALVE INSTALLATION

- A. Install in underground piping in boxes for automatic control valves. Install a gate valve before each control valve. Install a DBY splice kits at each automatic control valve. Fittings and nipples as required.

3.06 SPRINKLER INSTALLATION

- A. Install sprinklers after hydrostatic test is completed.
- B. Install sprinklers at manufacturer's recommended heights. Install on (2) el flexible swing joints.
- C. Locate part-circle sprinklers to maintain a minimum distance of 4 inches (100 mm) from walls and 2 inches (50 mm) from other boundaries unless otherwise indicated.

3.07 CONNECTIONS

- A. Install piping adjacent to equipment, valves, and devices to allow service and maintenance.
- B. Connect wiring between controllers and automatic control valves.

3.08 IDENTIFICATION

- A. Identify system components. Comply with requirements for identification specified in Division 22 Section "Identification for Plumbing Piping and Equipment."
- B. Warning Tapes: Arrange for installation of continuous, underground, detectable warning tapes over underground piping during backfilling of trenches. See Division 31 Section "Earth Moving" for warning tapes.

3.09 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- B. Perform tests and inspections.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- C. Tests and Inspections:
 - 1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
 - 2. Operational Test: After electrical circuitry has been energized, operate controllers and automatic control valves to confirm proper system operation.
 - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Any irrigation product will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

3.10 STARTUP SERVICE

- A. Startup service shall be the responsibility of the irrigation installer.
 - 1. Complete installation and startup checks according to manufacturer's written instructions.
 - 2. Verify that controllers are installed and connected according to the Contract Documents.
 - 3. Verify that electrical wiring installation complies with manufacturer's submittal.

3.11 ADJUSTING

- A. Adjust settings of controllers.

- B. Adjust automatic control valves to provide flow rate at rated operating pressure required for each sprinkler circuit.
- C. Adjust sprinklers and devices, except those intended to be mounted aboveground, so they will be flush with finish grade.

3.12 CLEANING

- A. Flush dirt and debris from piping before installing sprinklers and other devices.

3.13 DEMONSTRATION

- A. Train the Owner's maintenance personnel to adjust, operate, and maintain automatic control valves and controllers.

END OF SECTION

SECTION 02677

WETLANDS PROTECTION AND REPLICATION

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section consists of providing all plants, labor, equipment, materials, tools, and required professional services in connection with the protection, replication, and provision of specific mitigation measures to minimize and compensate for impacts to existing wetland areas.

1.02 RELATED WORK:

Section 01570, ENVIRONMENTAL PROTECTION

1.03 QUALITY ASSURANCE:

- A. This Contract requires construction adjacent to environmentally sensitive resource areas including flood plains and wetlands. The Wetlands Protection Act ("Act") G.L. Chapter 131 Sec. 40 governs work in these areas and the Contractor shall be required to comply with this and all other applicable Federal, State and local statutes, regulations, and ordinances, and with the Order of Conditions issued by the Conservation Commission.
- B. The Contract Drawings show the extent of the Bordering Vegetated Wetlands (BVW) and Buffer Zone (BZ). Work within the BVW or BZ shall also comply with the requirements of this section.

PART 2 - PRODUCTS

2.01 BACKFILL:

Loam and Organic Mixture - This section describes the specification for preparing a loam and organic mixture to be used as suitable backfill within the wetlands restoration and enhancement areas.

1. Loam shall be a natural, fertile, friable soil, typical of productive soils in the vicinity. Loam shall be free of admixture of subsoil and foreign matter or objects (gravel, roots, and debris) larger than 2 inches in diameter.

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WETLANDS PROTECTION AND REPLICATION

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2. Loam shall be uncontaminated and free of toxic substances or any materials harmful to plant growth, regeneration or reproduction. The pH of the loam shall range between 6.0 and 8.0.
3. Peat shall not be used. Compost shall be used for all organic content requirements.
4. The loam and organic mixture shall be mixed onsite to achieve a 5% organic content. This will be determined through laboratory analysis or organic content by the loss of weight by ignition of oven-dried samples. Test samples shall be oven-dried to a constant weight at a temperature of 230 degrees F. The final pH of the loam-peat mixture shall range from 5.8 to 8.0.

2.02 FERTILIZER:

Fertilizer shall be phosphorus free as recommended by the seed distributor for wetland meadow creation, 10-8 controlled release, commercial grade granular free flowing, and uniform in composition and shall conform to applicable state and federal regulations. Fertilizer shall be delivered in manufacturer's standard container printed within manufacturer's name, material, weight, and guaranteed analysis.

2.03 MOISTURE ENHANCER:

A suitable moisture enhancer containing at least 99% Copolymer Acrylamide Acrylate shall be obtained and used for each planted shrub and sapling. This moisture enhancer shall be SuperSorb-C, TerraSorb or approved equal.

2.04 MULCH:

- A. Salt Hay Mulch – Salt Hay mulch shall consist of mowed and properly cured grass, clover and other acceptable plants. Salt Hay mulch shall be free of seeds, weeds, twigs, debris or other deleterious material.
- B. Straw Mulch - Straw mulch shall consist of stalks or stems of grain after threshing.
- C. Wood Fiber Mulch - Wood fiber mulch shall consist of wood fiber produced from clean, whole, uncooked, native wood, formed into resilient bundles having a high degree of internal friction and shall be dry when delivered to the project.

2.05 HYDROSEED:

Hydroseed shall be supplied by an authorized hydroseed contractor. The Hydroseed mixture shall include annual grasses and seed stock from *Juncus spp.* and *Carex spp.* The wetlands restoration specialist shall approve the final hydroseed mixture.

2.06 WATER:

Water shall not contain elements toxic to plant life.

PART 3 - EXECUTION

3.01 GENERAL:

- A. In order to protect the wetlands from siltation caused by excavation in the replication area and by park construction, silt controls shall be placed as detailed in the Contract Drawings.
- B. The organic, top layer of wetlands soils (generally, the top 12-inches) contains the rootstock and seeds for many wetland plant species. As excavation in the wetlands areas commences, the Contractor shall separate the top 12-inch layer of wetland soils (topsoil) within the delineated wetland areas (flagged wetlands) from other soil types and stockpile the wetland soils within an upland area adjacent to the replication area. At no time will stockpiling of excavated soils within wetland areas be allowed. The wetland soil shall be carefully maintained in a wet condition by adequate watering and shall be protected by installing a siltation fence around the entire stockpiled area. Stockpiles shall be completely covered with a filter fabric and whenever possible, located in the shade.
- C. Suitable soil which is excavated, not including the top layer referred to in the paragraph above, shall be carefully removed for use as subgrade material beneath wetland topsoil and if it is not immediately used, shall be stored in a designated stockpile area, to be reused. All soils to be reused shall be carefully stockpiled and protected with appropriate drainage and erosion control.
- D. Once the replication area has been excavated, backfilling of the excavation with wetland soil can occur. Prior to the spreading of the wetland soil, the subsoil within the replication area shall be inspected and approved by the Engineer. The elevation and slope of the backfilled subgrade are critical elements in assuring proper replacement of wetlands soils and the function of the wetland. When backfilled with the soil discussed in the paragraph above, elevation and slopes of backfilled areas shall be consistent with the Contract Drawings minus 1-foot to allow for replacement of wetlands (BVW) soils.

3.02 WETLANDS (BVW) SOILS:

- A. Wetlands topsoil shall be deposited to a minimum depth of twelve (12) inches. Wetlands topsoil shall be deposited so as to minimize travel and subsequent compression of the underlying material and the replaced wetland topsoil. In the event that the Contractor fails to remove and stockpile sufficient wetlands topsoil to cover the replication area, or in the event sufficient wetlands topsoil is not present, the Contractor shall provide, at no additional cost to the Owner, replacement wetlands topsoil.

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Replacement wetlands topsoil, if required, shall be provided by a licensed nursery and shall be similar in composition, texture, fertility, and as described in Section 2.01 BACKFILL. The final grading of the replacement wetlands topsoil shall be completed so as to result in no discontinuities in elevation upon removal of any siltation barrier or erosion control materials.

- B. Upon completion of final grading, the surface of the new wetlands topsoil shall be shallowly harrowed (depth 3 inches), prior to planting.
- C. Upon completion of grading, a final condition survey of the wetlands restoration and enhancement areas shall be performed by a licensed surveyor. Elevations shall be checked in numerous random locations, and shall be within 0.1 feet of the final planned surface elevation. Areas that do not meet the 0.1 foot criteria shall be regraded.

3.03 PLANTING SCHEDULE:

Planting and hydroseeding shall not occur when the ground is frozen, snow covered or in an unsuitable condition for planting.

3.04 HYDROSEEDING:

Hydroseeding shall accomplish seeding, fertilizing and mulching. Hydroseeded areas shall be seeded at a rate of 400 pounds per acre. Hydroseed application shall be conducted between 15 April and 15 June or 15 September to 30 October, or as recommended by the hydroseed contractor.

3.05 PROTECTION:

Upon completion of construction activities within the wetlands restoration and enhancement areas, barricades or snow fencing shall be erected along upland areas adjacent the wetland to prevent unauthorized access.

3.06 REPLANTING OF WETLANDS VEGETATION IN THE REPLICATION AREA:

- A. In all wetlands, replication of the disturbed areas shall require replanting with indigenous wetland species. The Contractor shall have the option of digging, storing, and replanting existing trees, shrubs and groundcover and respreading stockpiled wetlands soil from the reservoir excavation area or, alternatively, providing and planting new wetland species at no additional cost to the Owner. The intent of this Section is to insure that at least 75 percent of the surface area of all disturbed wetlands is reestablished with indigenous wetland plant species within two growing seasons of their planting in accordance with the Massachusetts DEP Wetlands Protection Act Regulations. The growing season for wetlands revegetation areas shall be April 15 to October 15. Attention is called to the fact that wetlands to be replicated within the project site have been identified as shrub-scrub or shrub-sapling swamps. The wetland

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planting zones are schematically shown on the plans. Japanese Knotweed, Purple Loosestrife and Phragmites species shall not be planted in any wetland. If after 180 growing season days it is evident in the opinion of the Engineer that it is unlikely that the 75 percent reestablishment requirement will be achieved, the Contractor shall supplement the plantings as necessary to achieve the required coverage at no additional cost to the Owner. If at the end of two growing seasons, 75 percent reestablishment has not been achieved, the Contractor shall provide and plant additional new plant material to achieve 75 percent reestablishment at no additional cost to the Owner.

- B. Wetland species are divided into planting groups (designated below) according to their moisture requirements during the growing season. Plantings are done at specified elevations based on the assumed mean water table. (These elevations to be adjusted by the Engineer based on the mean water table as determined during one growing season April 15 to October 15).
- C. Wetland plantings shall be performed as designated on the Contract plans.
- D. Maintenance shall be provided until final acceptance. Final acceptance shall be obtained as stipulated in the attached Order of Conditions.

3.07 EROSION CONTROL SEEDING FOR WETLANDS:

- A. After wetland soil is respread, no further preparation for seeding is required or allowed. No fertilizer, limestone, superphosphate or other amendment shall be added to wetland soils. Seed mixture and application rates for this work shall follow the contract plans.
- B. A wetland seed mixture containing a wide variety of seeds native to New England and which do not include any invasive plant species prohibited in the latest edition of the "Performance Guidelines and Supplemental Information on the Checklist for Review of Mitigation Plan", published by the U.S. Army Corps of Engineers New England Division. Application rates shall be one pound per 5000 square feet when used in an understory seeding and two pounds per 5000 square feet when used in a wet meadow seeding.
- C. Where required by the Engineer for reasons of excessive soil moisture, the wetland seed mixture shall be modified by the addition of an approved portion by weight of Winter Rye seed to provide soil stabilization cover in the fall.

3.08 WORK IN THE BUFFER ZONE (BZ):

- A. When any work occurs in the Buffer Zone (BZ) within 100 feet of bordering vegetated wetlands (BVW), certain measures, as indicated on the Contract Drawings, shall be taken to protect the integrity of the wetlands.

- B. A siltation barrier consisting of a continuous row of straw woddles and a silt fence shall be placed between the BVW and the work area to prevent soil materials from entering the BVW from the BZ as shown on the Contract Drawings. This siltation barrier shall be inspected and maintained on a daily basis. Straw woddles and silt fence are specified in Section 01570.

- C. In general, storage of equipment or materials in BVW or BZ areas shall not be permitted. Storage of oil products or the repairing of vehicles and/or maintenance operations shall not be permitted in the BVW or BZ areas. Should the Engineer deem that the Contractor's activities are unnecessarily detrimental to the wetlands, the Engineer reserves the right to order the Contractor to immediately cease all activities on-site until the situation is resolved to the satisfaction of the Engineer.

END OF SECTION

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SECTION 02459

TIMBER PILES

PART 1 - GENERAL

1.01 WORK INCLUDED:

This section of the specification covers the furnishing of timber piles wrapped in a Fiberglass coating for the Fishing Pier shown on the drawings.

1.02 RELATED WORK:

- A. SECTION 06051 – Wood Decking

1.03 QUALITY ASSURANCE:

- A. The Contractor shall have sufficient experience in this type of work satisfactory to the Engineer.
- B. Excavation will be coordinated with pile driving work as required to permit access of the driving rig to interior piles and removal of rig after these piles have been driven.
- C. Driving rig and all procedures of handling and driving piles shall be subject to the approval of the Engineer. Equipment and methods failing to meet the Engineer's approval shall not be used.
- D. Piles shall be located and staked out by the Contractor and the Contractor shall maintain all location stakes and shall establish all elevations required.
- E. The Contractor shall write a report to the Engineer detailing all pile driving operations and certifying that the piles were installed per the Contract documents.

1.04 REFERENCES:

The following standards form a part of these specifications, and indicate the minimum standards required:

ASTM - American Society for Testing and Materials

ASTM - D25 Standard for Round Timber Piles

AWPA - American Wood Preservers' Association

AWPA - CI & C3 Standard for Impregnation of a Preservative into Wood

AWPA - P2-68 Grade B Standard for Creosote - Coal Tar Solutions

1.05 SUBMITTALS: IN ACCORDANCE WITH REQUIREMENTS OF GENERAL SPECIFICATIONS, SUBMIT THE FOLLOWING:

Six copies of manufacturer's literature of all materials used in this section shall be submitted to the Engineer for review.

PART 2 - PRODUCTS

2.01 PILES:

- A. Piles shall be clean peeled creosoted southern yellow pine, spruce, or Norway pine. Except as noted herein piles shall conform to the requirements for Class B piles as stated in the latest edition of Standard Specification for Round Timber Piles, ASTM D25.
- B. Piles shall be pressure treated according to ASTM D25.
- C. Each pile shall be provided in a 20 feet long single piece; spliced piles will not be permitted. Piles shall be at least 12 inches longer than the distance from point to cutoff (after driving is completed) and long enough to permit cutoff below any brooming or other damage to the wood occurred during the driving. Piles shall be cut from sound, live trees, and shall be free from defects which might materially impair strength or durability. Piles shall be butt-cut above the ground swell, and shall have substantially uniform taper from butt to point.
- D. Piles shall have a minimum point diameter of 10 inches and a minimum diameter at cutoff of 12 inches. The center line of the pile at any section along its length shall not deviate more than one inch from each ten feet of pile length from a straight line drawn from the center line of the pile at tip to the center line at cutoff.
- E. Piles shall be impregnated with preservative in accordance with the latest edition of Standards C1 and C3 of the American Wood Preservers' Association, to a net retention of 12 pcf. Before any piles are driven, the Contractor shall submit to the Engineer a Certificate of Inspection, issued by an approved independent testing laboratory, certifying that the piles are free from decay, properly peeled and otherwise prepared before treatment, and that method of treatment, composition of preservative, and net retention of preservative conform to the requirements stated above and the reference AWPA Standards. The preservative used shall conform to the requirements for Grade B of P2-68, Standard for Creosote-Coal Tar Solutions of the American Wood Preserver's Association.

- F. After being field cut, shaped or drilled, the cut, shaped or drilled surface of each piece shall be brush treated with not less than three heavy coats of the treating material applied hot.
- G. The Fiberglass Coating shall have multiple layers of Fiberglass with a Resilient Polyester Resin. The coating should have a minimum total thickness of 1.75 mm.
- H. All fasteners (nails, nuts, bolts, straps, etc.) shall be hot-dip galvanized.

PART 3 - EXECUTION

3.01 PILE DRIVING:

- A. Equipment shall be of the type generally used in standard pile driving practice. Hammer shall be either a single or double acting steam hammer or a diesel hammer. Hammer shall be capable of consistently delivering effective dynamic energy of not less than 6,500 nor more than 10,000 foot-pounds per blow. Double acting hammer shall be operated at not less than 80 percent of the maximum number of blows per minute for which the hammer is designed. The Contractor shall submit information on the hammer showing that it meets the requirements stated above.
- B. Piles shall be driven until driving resistance is sufficient to give a computed bearing capacity as shown on the drawings and as determined by the driving formula specified below. To prevent injury to the pile, when driving resistance increases to the degree that five blows are required per inch of penetration, driving shall stop.

Formula to be used to establish bearing capacity of the pile shall be:

$$R = 2.0 E / (S + 0.1)$$

Where: R = Pile capacity in pounds

E = Energy per hammer blow, in foot-pounds

S = Average penetration per blow in inches, for the final 6 inches of driving.

If abrupt increase in resistance is encountered, "S" shall be taken as the average penetration per blow for the last 5 blows, with a minimum value of S = 0.3 inches per blow.

- C. If brooming of pile head develops, pile shall be cut down to sound wood before driving for determination of the average penetration ("S" in the formula).
- D. To prevent brooming or splitting, piles shall be protected by means of a proper hood or ring at the top during driving. No followers or water jets shall be used during driving.

- E. Driving shall be continuous, without interruption, from first blow until driving is completed.
- F. Plan location of piles shall be within three inches of the center lines indicated on the drawing. Piles shall be plumb, with a horizontal projection no greater than two percent of the pile length. Pile shall not be pulled into line or subjected to other horizontal forces.
- G. The Contractor shall report to the Engineer the cut off required by each Pile. Pile cutoff shall be made accurate to the level indicated on the drawing, within a tolerance of plus or minus 1/2 inch. Cut surfaces shall be accurately plane and horizontal.
- H. Surplus lengths shall be removed from the site. Piles damaged below the cutoff elevation during driving will be rejected.
- I. Piles which undergo uplift shall be redriven to specified capacity.
- J. Piles damaged, mislocated, out of plumb, or otherwise failing to comply with this specification or the design drawing shall be cutoff and abandoned, or withdrawn and removed from the site, as directed. Such piles shall be replaced by additional new piles, driven where directed by the Engineer.

3.02 REMOVING EQUIPMENT AND MATERIALS:

At the conclusion of the pile driving work or when directed, the Contractor shall remove promptly all pile driving equipment and all remaining new piles, and shall pick up and dispose of all cutoff pieces and litter.

PART 4 - MEASUREMENT AND PAYMENT

4.01 TREATED TIMBER PILES:

- A. Treated timber piles shall be measured per vertical foot of timber piling left in place. No measurement shall be made under this item for piles which do not meet the specifications and are withdrawn or rejected or for piles which must be re-driven to meet specified capacity.
- B. Treated timber piles shall be paid at the contract unit price under the item "Treated Timber Piles." The unit price under this item shall include the furnishing of all materials, equipment, test piles, access roads, labor and incidentals required to install the piles as shown on the drawings and as specified.
- C. Piles which encounter obstructions and are ordered abandoned or removed by the Engineer will be paid under this section.

END OF SECTION

SECTION 02220

DEMOLITION

PART I - GENERAL

1.01 SCOPE OF WORK

- a. Work under this Section shall consist of the careful removal, storage for reuse, transportation off-site, or demolition, of all structures and site features encountered or noted to be removed or abandoned to a minimum of three feet below finished grade, and the removal and disposal of all materials not called for to be reused or salvaged, in accordance with the contract drawings, these specifications, and the directions of the Engineer. Provide all labor, equipment, materials and transportation necessary to complete the work.
- b. Items plan referenced to be removed and stored shall be carefully removed and stored on site in a manner and location designated by the Engineer for reinstallation later as shown on the plans or as directed by the Engineer.
- c. Items plan referenced, or as directed by the Engineer to be removed and disposed of shall be removed from the site and properly and legally disposed of by the Contractor.
- d. Items indicated on the contract drawings or in the specifications to be removed and salvaged, or other items directed to be removed by the Engineer, shall be transported to a municipal storage facility, located within the City confines, and unloaded and stacked as directed by the Engineer.
- e. The following scope describes the general work/demolition requirements of this Section.
 1. Cement concrete and bituminous concrete pavements.
 2. Players benches play area and all related concrete footings complete.
 3. Chain link fencing and footings complete.
 4. Concrete bleachers
 5. Segmental block walls basketball backboards, supports and footings
 6. Other features as indicated on the drawings.

1.02 PROTECTION

- a. The Contractor shall assume complete responsibility and liability for the safety and structural integrity of all work and utilities to remain during demolition.
- b. Provide safeguards including, but not limited to, warning signs, barricades, temporary fences, warning lights and other items required for protection of personnel and the general public during performance of all work.
- c. All features related to protection shall be maintained until that work has been completed to the point when such safeguards are no longer required.

1.03 SPECIAL REQUIREMENTS

- a. The Contractor shall salvage items label as such demolition work and transport these to the City Yard unless these are called for to be reused or ordered by the Engineer to be disposed of.
- b. Install erosion controls to protect adjacent areas from eroded materials likely to enter wetlands, resource areas, or drainage ways/systems, downstream of areas disturbed by work activities.
- c. Where items to be demolished are located within or adjacent to pavements to remain, the Contractor shall make provisions to protect that pavement to remain. Cut concrete pavement back to score line and cut bituminous concrete pavement back far enough so as not to allow disturbance to base course materials. Pavements damaged as a result of Contractor activities shall be replaced to the extent determined by the Engineer at no additional cost to the Owner.

PART II - MATERIALS

2.01 BACKFILL

- a. The Contractor shall provide suitable backfill as specified under Section 02300 of these Specifications, to fill voids left by removal or abandonment of site features, and shall provide all pipe cap ends, mortar, brick and other material needed to cap off or plug pipes of various sizes and kinds.
- b. Suitable materials shall be used as base course fill and topsoil to the depth as specified herein. Restore disturbed areas with similar materials blended to match the line and grades of adjacent surfaces.

2.02 TEMPORARY FENCE

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DEMOLITION

- a. The work under these Items shall conform to the relevant provisions of section 644 of the MHD standard specifications.
- b. The work shall include temporary installation of chain link fence around the perimeter of the work limits where shown on the plans, and as directed by the engineer.
- c. Temporary fence shall consist of 6' high chain link fence anchored into a base that is both stable and movable to allow access and adjustment as needed. Reclaimed existing fence fabric and materials may be used with the approval of the owner's representative. The contractor will be required to submit a shop drawing to the engineer for approval prior to installation.

PART III - EXECUTION

3.01 SALVAGEABLE MATERIAL

- a. Frames, grates and other salvageable material shall be carefully removed to minimize damage and stored for later reuse, transport, or removal from site.

3.02 ABANDONED STRUCTURES

- a. All inlets and outlets shall be plugged with at least eight (8) inches of brick and mortar masonry. Upper portions of masonry structures shall be removed to a depth of three feet. The bottoms of all structures shall be broken to allow drainage, and the structure shall be filled with suitable backfill material placed in six (6) inch layers and thoroughly compacted at each level.
- b. The Engineer shall review work related to abandoned structures before backfilling. Those items not reviewed before backfilling shall be uncovered and backfill procedures observed, at no expense to the Owner.

3.03 ABANDONED PIPES OR CONDUITS

- a. Plug previously abandoned drainpipes encountered with masonry brick at least eight (8) inches in thickness.
- b. Abandon discontinued water supplies that are encountered during the execution of this contract in accordance with City requirements.
- c. Electrical conduits encountered and previously abandoned shall be capped or plugged.

END OF SECTION

SECTION 06051

WOOD DECKING

PART I - GENERAL

1.01 SCOPE OF WORK

1. Provide all labor, materials and equipment to construct wood boardwalks in accordance with the plans and the prevailing building codes.

1.02 RELATED WORK

Does not apply.

1.03 STANDARDS

1. “National Design Specification for Wood Construction” NDS 2005 Edition, Massachusetts State Building Code 7th Edition, AWPA, AASHTO.

1.04 SUBMITTALS

1. Submit shop drawings for the complete assembly of all elements including, joist hangers, brackets, fasteners, beams, stringers, decking, etc.

PART II - MATERIALS

2.01 WOOD, PLATES, HARDWARE

1. All materials shall conform to the composition, type, finish and structural qualities as presented on the drawings. All aspects of dimensioning, values and treatments are detailed and elaborated on the drawings.
2. Decking and fasteners shall be stainless steel.
3. Bolts shall conform to ASTM A307. Washers shall be provided where bolts or nuts bear on wood surfaces.
4. All other steel hardware shall be hot dipped galvanized.

PART III - EXECUTION

3.01 PREPARATION (FOUNDATIONS IN LEDGE)

1. Where ledge is encountered and is sloped 10% or less, footings shall be cast directly on top. If the ledge slopes exceeds 10% rock anchors will be required as directed by the Engineer.

3.03 ASSEMBLY

1. Assemble all elements with proper dimensional cuts, lengths, widths and mitered angles, so that no filler pieces, scabs or other corrective actions are required to make the work safe and complete.

3.04 FIELD CUTS

1. All field cuts shall be treated per AWPAs Standards for the particular pressure treatment retention required, per AASHTO M133.

3.05 SPLINTERS

1. The Contractor shall sand off any splinters or protruding wood pieces that may have been sheared or splintered as part of his normal work operations.

PART 4 - GUARANTY

- 4.01 Guarantee all materials and workmanship for a one (1) year period.

--- END OF SECTION ---

Consultants:

Revisions:

Rev	Date	Description
1	11/29/2011	NO PLAN CHANGES
2	12/01/2011	NO CHANGES THIS SHEET
3	12/09/2011	CLARIFICATIONS

Seal:

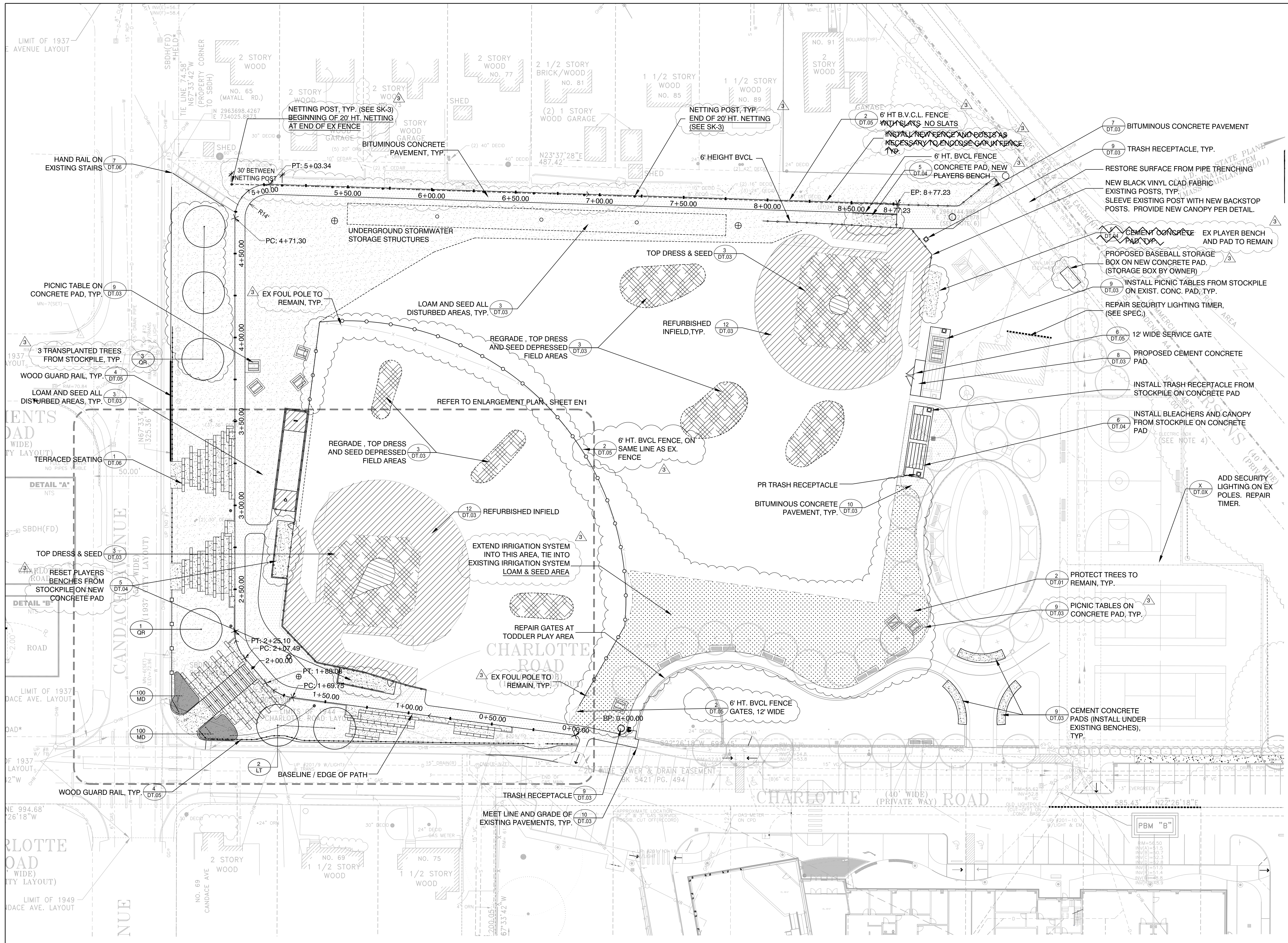
CONSTRUCTION DOCUMENTS

Date:	11.22.2011
Scale:	AS SHOWN
Drawn By:	MMM
Reviewed By:	MSM
Checked By:	LFK
Approved By:	ERB

Drawing Title:
MONSIGNOR MCCABE PLAYGROUND LAYOUT & MATERIALS PLAN

Sheet Number:

M-LM1

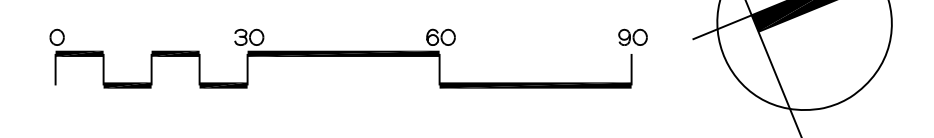


LAYOUT & MATERIALS LEGEND

- EX EXISTING
- PR PROPOSED
- PVT. PAVEMENT
- BENCH
- PICNIC TABLES
- SEATWALLS
- FENCE
- NEW TREELINE, TYP.
- EX TREE TO REMAIN, TYP.
- PROPOSED BITUMINOUS CONCRETE PAVEMENT
- PROPOSED CONCRETE PAVING
- PROPOSED TOP DRESS AND SEED
- PROPOSED LOAM & SEED
- REFURBISHED INFIELD
- GROUND COVER

Monsignor McCabe Playground PLANTING SCHEDULE

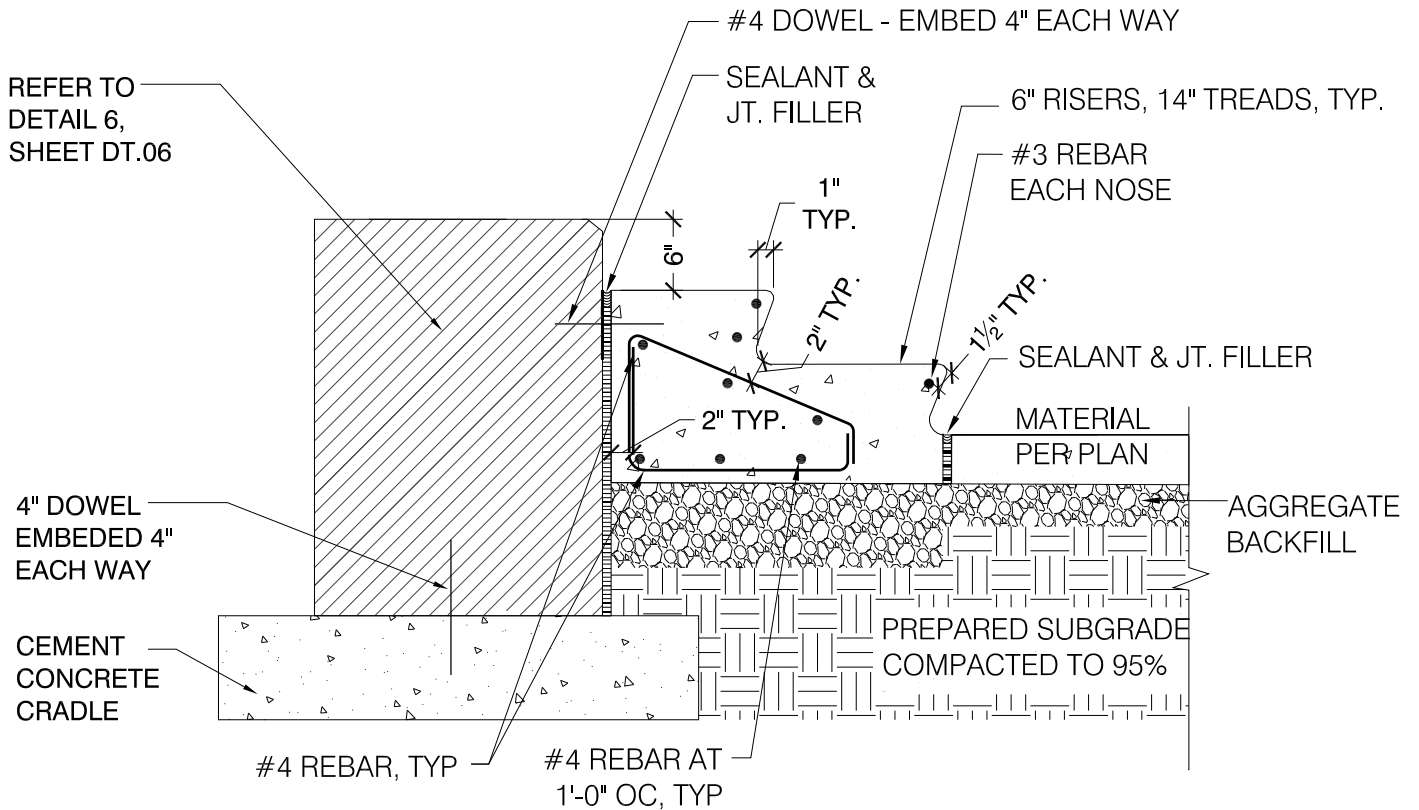
KEY	QTY.	BOTANICAL NAME	COMMON NAME	SIZE	Comments
DECIDUOUS TREES					
LT	2	Liriodendron tulipifera	Tulip Tree	3"-3.5" caliper	B&B, well-branched. Dense form
QR	4	Quercus rubra	Northern Red Oak	3"-3.5" caliper	B&B, well-branched. Dense form
SHRUBS					
MD	200	Microbiota decussata	Siberian Cypress	1 gallon	



11-22-2011 CONSTRUCTION DOCUMENTS

NOTES:

1. ALL HANDRAILS SHALL BE 1-1/2" O.D. STEEL (FINISH SHOP GALVINIZED).
2. WHERE NOTED HANDRAILS SHALL BE CORE DRILLED AND SET WITH EPOXY GROUT.
3. ALL WELDS SHALL BE GROUND DOWN CLEAN AND SMOOTH.
4. ALL DIMENSIONS SHALL BE FIELD VERIFIED AND ADJUSTED AS NEEDED.



NOT TO SCALE

Weston & Sampson

100 Foxborough Blvd., S.250, Foxborough, MA
 (508) 698-3034 (800) SAMPSON
 www.westonandsampson.com

**LAZAZZERO PARK & MONSIGNOR McCABE
 PLAYGROUND**

**CEMENT CONCRETE STAIRS
 AT TERRACE AREA
 (LAZAZZERO PARK)**

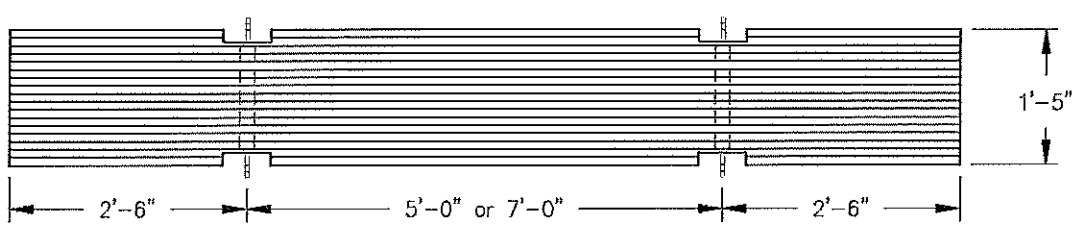
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MMM
 Approved by
MSM

Scale As Shown
 12.09.2011

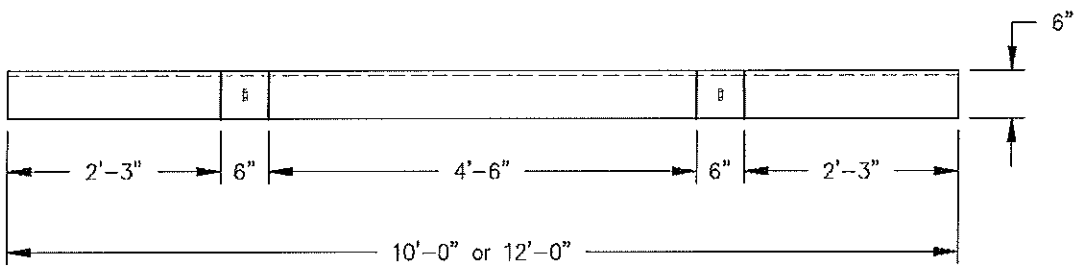
SK-1

Boat Ramp

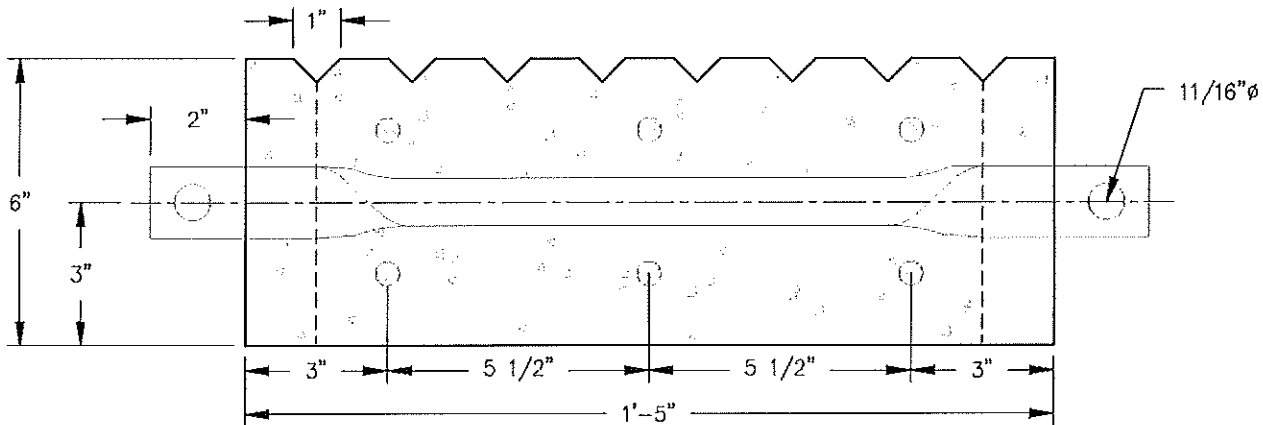
Item # 6888 - 10' Plank - WT: ~950 lbs.
 Item # 6889 - 12' Plank - WT: ~1,150 lbs.



Plan View



Elevation View



Section View

Scale: 3"=1'

Specifications:

- Concrete Compressive Strength 5000psi @ 28 days
w/4%-6% air entrainment
- Grade 60 #4 Bar Reinforcing per ASTM A615
- Twisted Steel Bars Cast-In
 - 1/2" x 1 1/2" x 20"
- Available in 10' & 12' Lengths

NOT TO SCALE

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**LAZAZZERO PARK & MONSIGNOR McCABE
 PLAYGROUND**

PRECAST CEMENT CONCRETE
 BOAT RAMP
 (LAZAZZERO PARK)

Drawn by:

MMM

Approved by:

MSM

Scale As Shown
 12.09.2011

SK-2

