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**NOTES:**

1. Refer to schedule for additional information and requirements.
2. Provide 100% complete work as required.
3. All materials to be furnished by the general contractor.
4. All work to be completed in accordance with the approved plans and specifications.
5. All work to be completed in accordance with the approved plans and specifications.
6. All work to be completed in accordance with the approved plans and specifications.
7. All work to be completed in accordance with the approved plans and specifications.
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25. All work to be completed in accordance with the approved plans and specifications.
NOTES:

1. THE TYPICAL DUCT BANK CONSISTS OF (6) 6" CONCRETE IN A 132" ARRAY (42 X 42"
   OR 42 X 50"), A REARRANGEMENT OF THE DUCT BANK ARRAYS IS REQUIRED AT CONVECTIONS TO EXITING
   MARGINS AND MAY BE REQUIRED AS ENTRY ORIGINS OR IF OTHER CONSTRUCTION ARE
   ENCOUNTERED. NO CHANGE ORDER OR ADDITIONS TO THE BASE PRICE IS FOR SUCH
   REARRANGEMENTS REGARDLESS OF THE NUMBER OR TYPE OF SUCH

KEY NOTES (APPLY TO ALL TYPICAL SECTIONS AS NOTED):

1. UTILITIES SHALL BE PROVIDED AT THE TRANSITION POINTS WHERE THE UTILITIES CONNECT TO ENTRYING
   PASSAGES. IT SHALL BE OURS FOR SMALL AND MEDIUM CONNECTIONS (3" DIA. CONDUIT) IN EACH
   PHASE WHERE THE UTILITIES IS LOCATED BETWEEN THE NEW CONCRETE PANELS OR BETWEEN NEW PANELS AND CURS IN
   SMALL TO CONSIDER INDIVIDUAL

2. INTERFACE UTILITY LOCATIONS VARY PER PLANS.

3. CONCRETE EXCAVATION SHALL CONFORM TO THE SAME CONCRETE CEMENT WITH (6) 28 Day CEMENT. THE CONCRETE SHOULDS
   CONFORM TO THE CONCRETE STRENGTH AT THE TIME OF THE CONCRETE STRESS ON THE CONCRETE CEMENT TESTS.

4. NO ADJUSTMENTS (ADJUSTED) IN PAY QUOTE OR PRICES WILL BE MADE FOR SMALLER EXCAVATION LIMITS
   BEYOND THOSE SHOWN OR AS MAY BE REQUIRED TO FACILITATE THE CONTRACTORS OPERATING OF
   CONCRETE EXCAVATIONS, PREREQUISITE INSTALLING OF THE MATERIALS TO ENTRY, OR SIMILARITY REQUIREMENTS.

5. SPACERS SHALL BE SECURED SUPPORT AND MAINTAIN COMPLETE SPACING OF THE PIPE AND COVER.
   SPACERS ON THE WALLS ABOVE THE TOP OF THE PRECAST BUILDING THE DUCT INTERNAL SPACERS
   SHOULD BE SECURED TO PIPE AND ENSURE TO PREVENT FULCRUM ON CONCRETE POLES. PREVIOUSLY INSTALLED, THE
   VERSATILE SUPPORT AND INSTALLATION OF THE PIPE DURING THE CONCRETE FORMWORK IS NOT ACT AS
   SUBSTRUCTIVE FOR SPACERS. MAINTAIN 3/8" TO 5/8" SPACING BETWEEN CONCRETE PANELS (REFER TO CONCRETE).

6. INTERSECTIONS POWER SHALL RUN UP, SUPPORT AND FIXTURES FOR INSTALLATION BY CONTRACTOR.

7. SMALL NOT TO BE MEASURED SEPARATELY BUT SHALL BE INCLUDED FOR PAYMENT PER UNIT 255060. "DUCT
   BANK"

8. FORM GAGES SHALL MATCH EXISTING MATERIALS UNLESS OTHERWISE NOTED IN THE PLANS.

9. REMOVE (DECCOM)

10. PAYMENT FOR COMMON EXCAVATIONS SHALL BE LIMITED TO REMOVAL OF EXCESS MATERIAL BETWEEN SPACE

11. PAYMENT TO THE CONTRACTOR FOR THE CONTRACTOR'S OPERATIONS SUCH THAT A COMPLETION

12. SAWCUT CONCRETE PAINT (FULL ONE)

13. THE WATER MAIN CONCRETE PLANTS APPROXIMATELY 10' TO 15' FROM HARRISON ST. (FULL ONE)

14. FULL SUPPORT AND PROTECT EXISTING UTILITY TO REMAIN, REFER TO UTILITY NOTES ON SHEET 4 AND SPECIAL
   PROVISIONS.
Temporary Water Service System Staging Requirements:
1. The contractor shall provide a water flow testing schedule, product information, and equipment to the engineer for approval at least 14 days prior to installation of temporary water service.
2. The contractor shall provide a pre-installation meeting with the city of Duluth prior to the installation of the temporary water system.
3. Temporary water service shall be fully established for each water main construction stage prior to the construction of the new water main.
4. The contractor shall keep records of all water main connections and disconnections as shown on the plans. The contractor shall take adequate steps to ensure the integrity of the existing water main.
5. The temporary water service system shall meet the requirements as specified by the City of Duluth Standard Construction Specifications Section 702.
6. Prior to moving any segment of temporary water service pipe, the pipe shall be coded with water main_Character_1 not acceptable. If the pipe becomes damaged, disconnected, or connected, the system shall be re-connected as specified for temporary service pipe for temporary service.
7. The contractor shall ensure that the temporary water service system meets the requirements of the City of Duluth Standard Construction Specifications Section 702.
8. Temporary water service is available for a period of up to 6 months, or as required by the project.
9. Temporary water service must be disconnected at the end of the construction season, and the system shall be re-connected as specified for temporary service pipe for temporary service.

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- Temporary water service must be disconnected at the end of the construction season, and the system shall be re-connected as specified for temporary service pipe for temporary service.

Key Notes:
- Permanent water service is provided by steel pipe throughout internal building plumbing.
- Temporary water service is provided by PEX tubing throughout internal building plumbing.
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</table>

![Diagram of Temporary Water Service Connection](image)

**Temporary Water Service Connection**

**Construction Details**

**Temporary Water Service System**

---

**Temporary Water Service**

**Notes:**
- All materials, equipment, and equipment to be provided at cost.
- In this drawing, the temporary water service is shown.
Phase 2: Concrete Surfacing Repair

- **Construction Limits (Typ.)**
- **Removal of Existing Pavement PL. Concrete Pavement HD.**
- Provide temporary traffic control to close Michigan Street areas and back of this location. Maintain access to Minnesota Power parking ramp. Closure shall be limited to 1 week in duration.

**Legend:**
- **Approximate Work Area**

**Traffic Control:**
- **Cover Exists One-Way Sign**
- **Provide Temporary Stop Sign at Avenues where Existing Sign is Not Present**
PE VALVE BOX SETTING

REVISION/REPAIRED 2/01/2013
CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES
NO SCALE

FIRE HYDRANT SETTING DETAIL - HOPE

REVISION/REPAIRED 02/17/2017
CITY OF DULUTH STANDARD DETAIL
DEPT. OF PUBLIC WORKS AND UTILITIES
NO SCALE
NORTH

WEST

EAST

SOUTH

SPALLING W/ EXPOSED REBAR

6-6" PVC

3-6" PVC

2-3" STL

2-3" STL

2" STL

3-3" STL

4-6" PVC

12-3" FIBER

6-6" PVC

12-3" FIBER

6-6" PVC

KEY NOTES:

1. SPALL REINFORCEMENT FOR PAVING UNDER THE SINGLE LUMP SUM PAY PER METRIC TON PER UNIT OF the PROJECT. (6) CONCRETE MIXES SHOWN.

2. ADD W/J-10 WEST WALL CONNECTION DETAILS.

3. NOTES TO BE DONE.

4. INSTALL 6" PVC CONDUIT.

5. SEE J-10 EAST WALL CONNECTION DETAILS.

6. SEE J-10 WEST WALL CONNECTION DETAILS.

WORK TO BE DONE:

1. REMOVE ALL EXPOSED SPALLING CONCRETE TO REVEAL CONCRETE SURFACE

2. REMOVE ALL MODIFIED FROM EXPOSED REBAR SURFACES

3. CLEAN EXPOSED REBAR WITH ALKALI MISTED TO 1/2 OR APPROVED EQUIPMENT DIRECT TO ALL EXPOSED REBAR SURFACES

4. LEASE DISH WITH 4" BOLT HOLE OR APPROVED EQUAL TO SHEET (6) CONCRETE W/ REBAR.

5. INSTALL 6" PVC CONDUIT.

6. SEE J-10 EAST WALL CONNECTION DETAILS.

7. INSTALL 6" PVC CONDUIT.

8. SEE J-10 WEST WALL CONNECTION DETAILS.

9. INSTALL 6" PVC CONDUIT.

10. SEE J-10 EAST WALL CONNECTION DETAILS.

11. INSTALL 6" PVC CONDUIT.

12. SEE J-10 WEST WALL CONNECTION DETAILS.

13. INSTALL 6" PVC CONDUIT.

14. SEE J-10 EAST WALL CONNECTION DETAILS.

15. INSTALL 6" PVC CONDUIT.

16. SEE J-10 WEST WALL CONNECTION DETAILS.

17. INSTALL 6" PVC CONDUIT.

18. SEE J-10 EAST WALL CONNECTION DETAILS.

19. INSTALL 6" PVC CONDUIT.

20. SEE J-10 WEST WALL CONNECTION DETAILS.

21. INSTALL 6" PVC CONDUIT.

22. SEE J-10 EAST WALL CONNECTION DETAILS.

23. INSTALL 6" PVC CONDUIT.

24. SEE J-10 WEST WALL CONNECTION DETAILS.

25. INSTALL 6" PVC CONDUIT.

26. SEE J-10 EAST WALL CONNECTION DETAILS.

27. INSTALL 6" PVC CONDUIT.

28. SEE J-10 WEST WALL CONNECTION DETAILS.

29. INSTALL 6" PVC CONDUIT.

30. SEE J-10 EAST WALL CONNECTION DETAILS.

31. INSTALL 6" PVC CONDUIT.

32. SEE J-10 WEST WALL CONNECTION DETAILS.

33. INSTALL 6" PVC CONDUIT.

34. SEE J-10 EAST WALL CONNECTION DETAILS.

35. INSTALL 6" PVC CONDUIT.

36. SEE J-10 WEST WALL CONNECTION DETAILS.

37. INSTALL 6" PVC CONDUIT.

38. SEE J-10 EAST WALL CONNECTION DETAILS.

39. INSTALL 6" PVC CONDUIT.

40. SEE J-10 WEST WALL CONNECTION DETAILS.

41. INSTALL 6" PVC CONDUIT.

42. SEE J-10 EAST WALL CONNECTION DETAILS.

43. INSTALL 6" PVC CONDUIT.

44. SEE J-10 WEST WALL CONNECTION DETAILS.

45. INSTALL 6" PVC CONDUIT.

46. SEE J-10 EAST WALL CONNECTION DETAILS.

47. INSTALL 6" PVC CONDUIT.

48. SEE J-10 WEST WALL CONNECTION DETAILS.

49. INSTALL 6" PVC CONDUIT.

50. SEE J-10 EAST WALL CONNECTION DETAILS.

51. INSTALL 6" PVC CONDUIT.

52. SEE J-10 WEST WALL CONNECTION DETAILS.

53. INSTALL 6" PVC CONDUIT.

54. SEE J-10 EAST WALL CONNECTION DETAILS.

55. INSTALL 6" PVC CONDUIT.

56. SEE J-10 WEST WALL CONNECTION DETAILS.

57. INSTALL 6" PVC CONDUIT.

58. SEE J-10 EAST WALL CONNECTION DETAILS.

59. INSTALL 6" PVC CONDUIT.

60. SEE J-10 WEST WALL CONNECTION DETAILS.

61. INSTALL 6" PVC CONDUIT.

62. SEE J-10 EAST WALL CONNECTION DETAILS.

63. INSTALL 6" PVC CONDUIT.

64. SEE J-10 WEST WALL CONNECTION DETAILS.

65. INSTALL 6" PVC CONDUIT.

66. SEE J-10 EAST WALL CONNECTION DETAILS.

67. INSTALL 6" PVC CONDUIT.

68. SEE J-10 WEST WALL CONNECTION DETAILS.

69. INSTALL 6" PVC CONDUIT.

70. SEE J-10 EAST WALL CONNECTION DETAILS.

71. INSTALL 6" PVC CONDUIT.

72. SEE J-10 WEST WALL CONNECTION DETAILS.

73. INSTALL 6" PVC CONDUIT.

74. SEE J-10 EAST WALL CONNECTION DETAILS.

75. INSTALL 6" PVC CONDUIT.

76. SEE J-10 WEST WALL CONNECTION DETAILS.

77. INSTALL 6" PVC CONDUIT.

78. SEE J-10 EAST WALL CONNECTION DETAILS.

79. INSTALL 6" PVC CONDUIT.

80. SEE J-10 WEST WALL CONNECTION DETAILS.

81. INSTALL 6" PVC CONDUIT.

82. SEE J-10 EAST WALL CONNECTION DETAILS.

83. INSTALL 6" PVC CONDUIT.

84. SEE J-10 WEST WALL CONNECTION DETAILS.

85. INSTALL 6" PVC CONDUIT.

86. SEE J-10 EAST WALL CONNECTION DETAILS.

87. INSTALL 6" PVC CONDUIT.

88. SEE J-10 WEST WALL CONNECTION DETAILS.

89. INSTALL 6" PVC CONDUIT.

90. SEE J-10 EAST WALL CONNECTION DETAILS.

91. INSTALL 6" PVC CONDUIT.

92. SEE J-10 WEST WALL CONNECTION DETAILS.

93. INSTALL 6" PVC CONDUIT.

94. SEE J-10 EAST WALL CONNECTION DETAILS.

95. INSTALL 6" PVC CONDUIT.

96. SEE J-10 WEST WALL CONNECTION DETAILS.

97. INSTALL 6" PVC CONDUIT.

98. SEE J-10 EAST WALL CONNECTION DETAILS.

99. INSTALL 6" PVC CONDUIT.

100. SEE J-10 WEST WALL CONNECTION DETAILS.

101. INSTALL 6" PVC CONDUIT.

102. SEE J-10 EAST WALL CONNECTION DETAILS.

103. INSTALL 6" PVC CONDUIT.

104. SEE J-10 WEST WALL CONNECTION DETAILS.

105. INSTALL 6" PVC CONDUIT.

106. SEE J-10 EAST WALL CONNECTION DETAILS.

107. INSTALL 6" PVC CONDUIT.

108. SEE J-10 WEST WALL CONNECTION DETAILS.

109. INSTALL 6" PVC CONDUIT.

110. SEE J-10 EAST WALL CONNECTION DETAILS.

111. INSTALL 6" PVC CONDUIT.

112. SEE J-10 WEST WALL CONNECTION DETAILS.

113. INSTALL 6" PVC CONDUIT.

114. SEE J-10 EAST WALL CONNECTION DETAILS.

115. INSTALL 6" PVC CONDUIT.

116. SEE J-10 WEST WALL CONNECTION DETAILS.

117. INSTALL 6" PVC CONDUIT.

118. SEE J-10 EAST WALL CONNECTION DETAILS.

119. INSTALL 6" PVC CONDUIT.

120. SEE J-10 WEST WALL CONNECTION DETAILS.

121. INSTALL 6" PVC CONDUIT.

122. SEE J-10 EAST WALL CONNECTION DETAILS.

123. INSTALL 6" PVC CONDUIT.

124. SEE J-10 WEST WALL CONNECTION DETAILS.
SPALLED CONCRETE (TYP.)
EXPOSED STEEL (TYP.)
SPALLED MASONRY
6-6" PVC
12-3" FIBER
6-6" PVC
6-4" PVC
13-3" FIBER
6-3" STL
3-3" STL

WORK TO BE DONE:

1. Remove all spalled concrete to sound concrete.
2. Remove all corrosion/flux from exposed steel surfaces.
3. Coat exposed steel with CE concrete admixture or approved equivalent.
4. Clean all exposed concrete surfaces of dust & debris.
5. Use non-drying structural concrete or approved equal to fill all spalled concrete areas.

KEY NOTES:

1. Shall be included for payment under the single lump sum payment treaty electrical manhole - 20
NORTH

3" STL
4" PVC
6-6" PVC
4" PVC
SPLIT DUCT

WEST

SOUTH

EAST

4" PVC SPLIT DUCT
6-6" PVC

ILLINOIS

NORTH

4" PVC CONDUIT

CONDUIT

INSTALL 4 - 6" PVC CONDUIT

KEY NOTES:
1. SHALL BE PROVIDED FOR FARMER UNDER THE SINGLE LAMP S MATE RIL 0 128" LONG ELECTRICAL HANDEL
2. PAD FOR AS "CONNECT INTO EXISTING ELECTRICAL HANDEL" BY THE EACH FOR CONNECTING (8) CONDUIT AS SHOWN
3. PAD FOR AS "CONNECT INTO EXISTING ELECTRICAL HANDEL" BY THE EACH FOR CONNECTING (4) CONDUIT AS SHOWN
4. SEE ATTACHED CONDUIT DETAIL ON SHEET 41

WORK TO BE DONE

1. REMOVE ALL EXPOSED CONCRETE TO DRY CONCRETE
2. APPLY ALL RUST/PEELING PAINT TO DRY SURFACES
3. APPLY ALL PAINT/PAINT TO DRY SURFACES
4. APPLY ALL RUST/PEELING PAINT TO DRY SURFACES
5. APPLY ALL RUST/PEELING PAINT TO DRY SURFACES
6. APPLY ALL RUST/PEELING PAINT TO DRY SURFACES

NOTES FOR DETAILS

1. OUT 24 3/4" MOLD IN THE CONCRETE WALL 2 REMOVE ALL EXPOSED CONCRETE
2. INSTALL ALL FASTENED REBAR 🦂 IN THE CONCRETE WALL 4" DEEP INSIDE CONCRETE 4" DEEP INSIDE CONCRETE
3. PLACE 4 - 6" PVC CONDUIT IN THE WALL
4. USE 6-6" PVC CONDUIT TO INCREASE PVC CONDUIT

NOTES FOR DETAILS

1. CONDUCTORS 2 4" PVC @ MOUNT AN 6" DEEPENING LONG W/ADHESIVE ADHESIVE FOR EXISTING INTO MOUNTAN MOUNT AN 6" DEEPENING FOR EXISTING INTO MOUNTAN MOUNT AN 6" DEEPENING
2. CLEAR THE CONCRETE & DRY CONCRETE WITH THE USE OF SOAP DETECT
3. USE 6-6" PVC CONDUIT TO DRY CONCRETE TO ALL THE WORK

MICHIGAN ST. 3RD-13TH AVE WEST

BRAD SCOTT

CONSTRUCTION DETAILS

MICHIGAN ST. 3RD-13TH AVE WEST

CITY PROJECT NO. 1603

CONSTRUCTION DETAILS

SHEET NO. 40 4 4 SHEET
4" OF SAND BETWEEN CASTING AND CONCRETE

NORTH

WEST

EAST

SOUTH

11-3" FIBER

6-4" PVC

12-3" FIBER

6-6" PVC

3-3" STL

2-3" STL

WORK TO BE DONE

1. MIX 1:1:2 CONCRETE 6" THICK.

2. ADD 1-3" COATED MESH CONCRETE INTO THE CONCRETE WITH 0.5% VOLUME BY FRESH CONCRETE W/M RATIO EQUAL TO APPROVED EQUAL.

3. PLACE 0.06" PLASTIC PVC CONDUIT IN THE WALL.

4. USE GOOD PREDON IN GROUT FOR WIRING IN THE WALL.

KEY NOTES

1. PULL NEW CONCRETE INTO EXISTING ELECTRICAL MESH.

2. SEE TYPICAL CONNECTION DETAIL ON SHEET A1.
WORK TO BE DONE

1. REMOVE ALL BUBBLES/SPALLING CONCRETE TO GOOD CONCRETE.
2. REMOVE ALL CORRODED/PLASTIC FROM EXPOSED REBAR SURFACES.
3. COAT EXPOSED REBAR WITH TWO COATINGS OF LIFEGUARD OR APPROVED EQUIVALENT STAIN TO ALL EXPOSED SURFACES.
4. CLEAN ALL EXPOSED CONCRETE SURFACES OF DUST & DEBRIS.
5. USE ONE (1) STRUCTURAL CONCRETE VST OR APPROVED EQUAL TO FILL ALL SPALLED CONCRETE AREAS.

KEY NOTES:
1. SHALL BE INCLUDED PER PAYMENT DUE TO THE SINGLE LUMP SUM PAYMENT. CHECK ELECTRICAL MAXIMUM - 2"
### Work to be Done

**Notes:**

- **12-3" Fiber**
- **4-6" PVC**
- **4-4" STL**
- **2-4" PVC**

**Key Notes:**

- 1. **Remove all loose/sticking concrete to sound concrete.**
- 2. **Prime all concrete/stick from exposed repair surfaces.**
- 3. **Cut exposed areas with ADA approved for use on approved equivalent bolts to all exposed repair surfaces.**
- 4. **Clean all exposed concrete prior to bolt & seal.**
- 5. **Use the same structural concrete mix or approved equivalent to fill all repaired concrete areas.**

**Notes:**

- **12-3" Fiber in the east concrete wall to remove all loose concrete.**
- **Install a 0.5% coat repair cement into the concrete with a 4" minimum embedment using neat 60/40 solution into the cavity.**
- **Mix 8 - 10 kg cement per cubic meter of the mix.**
- **Use 600 to 700 kg per cubic meter of the new concrete.**

**Materials:**

- **Fiber:** 12-3"
- **Concrete Mix:** Structural
- **Repair Cement:** 0.5% coat

**Construction Details:**

- **Michigan St. 3rd-1st Ave West**
- **City Project No. 160**

**Notes:**

- **See typical connection detail on Sheet A.**

**Signatures:**

- **Brad Scott**
- **日期:** [日期]
- **日期:** [日期]

---

**Sheet No:** 48 / **Total Sheet:** 48