City and Borough of Juneau

STANDARD DETAILS
4th Edition
August 2011
City and Borough of Juneau Standard Details  
4th Edition, Revised

Standard Details are used to standardize the construction of roads, utilities and other public works infrastructure within the City and Borough of Juneau right-of-way. The drawings are produced by the CBJ Engineering Department and published for use by design professionals and contractors.

The City and Borough of Juneau requires adherence to the standards shown in this manual. However, the CBJ Engineering Department will consider alternatives to the Standard Details on a case by case basis, as recommended by design professionals and qualified contractors.

The first edition of this manual was published April 1, 1996, and this document represents the fourth edition. All of the Standards have been revised and adopted in August 2011.

These Standard Details are subject to revision, and will be superseded by subsequent editions of this manual. Also, errata may be issued to make small modifications to the Standards. For information on the edition that is currently in effect and all applicable errata, go to the Engineering Department website at: www.juneau.org/engineering or contact the Engineering Department at the following address:

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Engineering Department  
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Juneau, Alaska 99801  
Contracts@ci.juneau.ak.us  
(907) 586-0873

DUNCAN RORIE WATT
SE 10275

Rorie Watt, P.E.  
Engineering Director  
City and Borough of Juneau  
November 3, 2011
Street Details

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NOTES:
1. MAXIMUM CENTERLINE ROAD GRADE SHALL BE 12%.
2. CENTERLINE ROAD GRADE WITHIN 100' OF INTERSECTIONS SHALL BE A MINIMUM OF -2% FOR 20 FEET AND AND A MAXIMUM OF 6% FOR 80 FEET MEASURED FROM THE EDGE OF PAVEMENT.
3. MINIMUM LONGITUDINAL DITCH SLOPE SHALL BE 0.5% DITCHING IN STEEP TERRAIN SHALL BE INSTALLED ON THE UPHILL SIDE OF ROADWAY ONLY OR AS APPROVED BY THE ENGINEER.
4. ALL CULVERTS MUST BE AT LEAST 18" IN DIAMETER AND INSTALLED WITH HEADWALLS (SEE STD 104B).
5. RIGHT OF WAY AND ROADWAY PRISM SHALL BE CLEARED IN ACCORDANCE WITH SECTION 02201 - CLEARING AND GRUBBING.
6. EXCAVATION AND EMBANKMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 02202 - EXCAVATION AND EMBANKMENT.
7. ALL CUT AND FILL SLOPES SHALL BE TOPSOILED IN ACCORDANCE WITH SECTION 02709 - TOPSOIL, AS APPROVED BY THE ENGINEER.
8. ALL CUT AND FILL SLOPES SHALL BE SEEDED IN ACCORDANCE WITH SECTION 02710 - SEEDING AND THE MANUAL OF STORMWATER BEST MANAGEMENT PRACTICES AS APPROVED BY THE ENGINEER.
9. ALL ORGANIC SOILS SHALL BE REMOVED TO A MINIMUM DEPTH OF 5' FROM TOP OF SUBGRADE AND REPLACED WITH NFS MATERIAL WITHIN THE ROADWAY PRISM AS APPROVED BY THE ENGINEER.
10. THE ROADWAY PRISM SHALL BE WIDENED BY 2' WHEN GUARDRAIL IS REQUIRED. (SEE STD. 102B)
11. ROAD PRISM SHALL CONSIST OF 18" SHOT ROCK, 9" 2"MINUS ROCK AND 3" D-1.
12. IF DRAINAGE REQUIRES DITCHES DEEPER THAN 3', STORM DRAIN PIPE AND NECESSARY CATCH BASINS SHALL BE INSTALLED AS APPROVED BY THE ENGINEER.
13. FILTER FABRIC SHALL BE USED AS APPROVED AND/OR REQUIRED BY THE ENGINEER.
14. STORMWATER RUNOFF FROM PRIVATE PROPERTY SHALL BE DIRECTED INTO AN APPROVED DRAINAGE WAY PRIOR TO ENTERING THE ROADWAY PRISM AS APPROVED BY THE ENGINEER.
NOTES
1. Maximum road grade shall be 12%.
2. Centerline road grade within 100' of intersections shall be a minimum of -2% for 20' and a maximum of 6% for 80', measured from edge of pavement.
3. Minimum grade for concrete gutter shall be 0.5%.
4. Right of way and roadway prism shall be cleared in accordance with Section 02201 - Clearing and grubbing.
5. Excavation and embankments shall be constructed in accordance with Section 02202 - Excavation and embankment.
6. All cut and fill slopes shall be seeded in accordance with Section 02710 - Seeding and the manual of stormwater best management practices as approved by the engineer.
7. All cut and fill slopes shall be topsoiled in accordance with Section 02709 - Topsoil as approved by the engineer.
8. All organic soils shall be removed to a minimum depth of 5' from top of subgrade within the roadway prism as approved by the engineer.
9. Halfwidth shall be 16' on collector streets.
10. If a bike lane is required by the engineer, construction shall conform to AASHTO specifications.
11. Asphalt concrete sidewalks may be approved as directed by the engineer.
12. Catch basin with area drain to be constructed 1 per lot or as directed by the engineer.
13. Stormwater runoff from private property shall be directed into an approved drainage way prior to entering the roadway prism as approved by the engineer.
1. Maximum road grade shall be 12%.
2. Centerline road grade within 100' of intersections shall be a minimum of -2% for 20' and a maximum of 6% for 80', measured from the edge of pavement.
3. All organic materials shall be removed to a minimum depth of 5' from top of subgrade within the roadway prism and replaced with NFS material as approved by the engineer.
4. Right of way and roadway prism shall be cleared in accordance with Section 02201 - Clearing & Grubbing.
5. Excavation and embankments shall be constructed in accordance with Section 02202 - Excavation and Embankment.
6. All cut and fill slopes shall be seeded in accordance with Section 02710 - Seeding and the Manual of
7. Stormwater best management practices as approved by the engineer.
8. All cut and fill slopes shall be topsoiled in accordance with Section 02709 - Topsoil as approved by the engineer.
9. Guardrail construction shall conform to Section 02708 - Guard Rail, CBJ Standard Specifications for Civil Engineering Projects and Subdivision Improvements, Alaska Department of Transportation Standard Drawings, Section G and CBJ Standard 110, Guardrail.
10. Stormwater runoff from private property shall be directed into an approved drainage way prior to entering the roadway prism as approved by the engineer.
NOTES
1. MAXIMUM ROAD GRADE SHALL BE 12%.
2. CENTERLINE ROAD GRADE WITHIN 100' OF INTERSECTIONS SHALL BE -2% FOR 20' AND A MAXIMUM OF 6% FOR 80', MEASURED FROM THE EDGE OF PAVEMENT.
3. MINIMUM GRADE FOR CONCRETE CURB AND GUTTER SHALL BE 0.5%
4. RIGHT OF WAY AND ROADWAY PRISM SHALL BE CLEARED IN ACCORDANCE WITH SECTION 02201 - CLEARING AND GRUBBING.
5. EXCAVATION AND EMBANKMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 02202 - EXCAVATION AND EMBANKMENT.
6. ALL CUT AND FILL SLOPES SHALL BE TOPSOILED IN ACCORDANCE WITH SECTION 02709 - TOPSOIL, AS APPROVED BY THE ENGINEER.
7. ALL CUT AND FILL SLOPES SHALL BE SEEDED IN ACCORDANCE WITH SECTION 02710 - SEEDING AND THE MANUAL OF STORMWATER BEST MANAGEMENT PRACTICES AS APPROVED BY THE ENGINEER.
8. ALL ORGANIC MATERIALS SHALL BE REMOVED TO A MINIMUM DEPTH OF 5' FROM TOP OF SUBGRADE AND REPLACED WITH NFS MATERIAL WITHIN THE ROADWAY PRISM AS APPROVED BY THE ENGINEER.
9. DRIVEWAY/DRAINAGE SWALE SHALL BE CONSTRUCTED WITH 18" SHOT ROCK, 6"-2" MINUS, 2"-D-1 TO PROPERTY LINE. DRIVEWAY GRADE TO BE 4:1 MAX WITH A DEPTH NO GREATER THAN 1FT.
10. CATCH BASIN WITH AREA DRAIN SHALL BE INSTALLED ONE PER LOT OR AS REQUIRED BY THE ENGINEER.
11. ASPHALT SIDEWALK SHALL BE CONSTRUCTED WITH 18" SHOT ROCK, 6"-2" MINUS, 2"-D-1, 2" A.C. PAVEMENT.
12. STORMWATER RUNOFF FROM PRIVATE PROPERTY SHALL BE DIRECTED INTO AND APPROVED DRAINAGE WAY PRIOR TO ENTERING THE ROADWAY PRISM AS APPROVED BY THE ENGINEER. RUNOFF TO BE CAPTURED PRIOR TO CROSSING ASPHALT SIDEWALK.
NOTES

1. MAXIMUM ROAD GRADE SHALL BE 12%.
2. CENTERLINE ROAD GRADE WITHIN 100' OF INTERSECTIONS SHALL BE A MINIMUM OF -2% FOR 20' AND A MAXIMUM OF 6% FOR 80' MEASURED FROM THE EDGE OF PAVEMENT.
3. BIOFILTRATION SWALES SHALL BE CONSTRUCTED PER THE GUIDELINES SET FORTH IN THE OBJ MANUAL OF STORMWATER BEST MANAGEMENT PRACTICES. UNDERDRAINS AND UNDERGROUND STORMWATER PIPING MAY BE REQUIRED IN ADDITION TO THE SWALES.
4. ALL ORGANIC MATERIALS SHALL BE REMOVED TO A MINIMUM DEPTH OF 3" FROM TOP OF SUBGRADE AND REPLACED WITH NF5 MATERIAL WITHIN THE ROADWAY PRISM AS APPROVED BY THE ENGINEER.
5. RIGHT OF WAY AND ROADWAY PRISM SHALL BE CLEARED IN ACCORDANCE WITH SECTION 02201 - CLEARING AND GRUBBING.
6. EXCAVATION AND EMBANKMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 02202 - EXCAVATION AND EMBANKMENT.
7. ALL CUT AND FILL SLOPES SHALL BE SEEDED IN ACCORDANCE WITH SECTION 02710 - SEEDING AND THE MANUAL OF STORMWATER BEST MANAGEMENT PRACTICES AS APPROVED BY THE ENGINEER.
8. ALL CUT AND FILL SLOPES SHALL BE TOPSOILED IN ACCORDANCE WITH SECTION 02709 - TOPSOIL, AS APPROVED BY THE ENGINEER.
9. 5' PRIVATE DRAINAGE EASEMENT SHALL COLLECT ON LOT DRAINAGE TO BE DIRECTED INTO THE BIOFILTRATION SWALE AS APPROVED BY THE ENGINEER.
10. ASPHALT DRIVEWAYS AND SIDEWALK SHALL BE CONSTRUCTED WITH A MINIMUM OF 18"-SHOT ROCK, 6"-2" MINUS, 2"-D-1, 2" A.C. PAVEMENT.
NOTES:
1. CULVERT MUST SLOPE TO MATCH FLOWLINE OF THE DITCH OR AS APPROVED BY THE ENGINEER.
2. COMBINED DRIVEWAYS ARE ALLOWED WHEN APPROVED BY THE CBW PLANNING COMMISSION FOR SUBDIVISIONS OR CONDITIONAL USE. COMBINED ZERO LOT LINE PROPERTIES' DRIVEWAYS SHALL NOT EXCEED 32" IN WIDTH.
3. PAVING LIMIT FOR DRIVEWAYS SHALL BE 2' FROM THE EDGE OF ROADWAY OR AS APPROVED BY THE ENGINEER.
4. DRIVEWAY SHALL BE GRADED TO DRAIN INTO DITCH.
5. ON PAVED DRIVEWAYS, EXTEND HEADWALL TO MEET PAVING. ON UNPAVED DRIVEWAYS TOP OF HEADWALL SHALL BE A MINIMUM OF 6" BELOW THE DRIVEWAY SURFACE.
6. SUBBASE MATERIAL AND DEPTH WITHIN THE ROW SHALL CONFORM TO STANDARD 102C.
7. IF THERE IS A CURB BOX/WATER VALVE IN DRIVEWAY REFER TO STANDARD 419 FOR CURB BOX ELEVATION AND THAW WIRE.
8. STANDARD CULVERT DIAMETER IS A MINIMUM OF 18" WITH A MIN OF 12" COVER TO FINISHED SURFACE. 12" CULVERTS MAY BE ALLOWED AT THE DISCRETION OF ENGINEER.

SCALE: NTS  DATE: 7/5/95  CITY AND BOROUGH OF JUNEAU, ALASKA
DRAWN BY: DRW  CHECKED BY: JB/STAFF  DRIVEWAY FOR STREETS WITHOUT CURB & GUTTER
APPROVED BY:  REVISED: 8/14/2011  STANDARD 103A
NOTES:
1. COMBINED DRAWSAYS ARE ALLOWED WHEN APPROVED BY THE CBJ PLANNING COMMISSION FOR SUBDIVISIONS OR CONDITIONAL USE. COMBINED ZERO LOT LINE PROPERTIES' DRIVEWAYS SHALL NOT EXCEED 32 IN WIDTH.
2. PAVING LIMIT FOR DRIVEWAYS SHALL BE 2 FROM THE EDGE OF ROADWAY OR AS APPROVED BY THE ENGINEER.
3. DRIVEWAY SHALL BE GRADED TO DRAIN INTO DITCH.
4. ON PAVED DRIVEWAYS, EXTEND HEADWALL TO MEET PAVING. ON UNPAVED DRIVEWAYS, TOP OF HEADWALL SHALL BE A MINIMUM OF 6 INCHES BELOW THE DRIVEWAY SURFACE.
5. SUBBASE MATERIAL AND DEPTH WITHIN THE RIGHT-OF-WAY SHALL CONFORM TO STANDARD 102C.
6. IF THERE IS A CURB BOX MARKING A WATER VALVE IN DRIVEWAY REFER TO STANDARD 416 FOR CURB BOX ELEVATION AND THAW WIRE.
7. THE SUM OF THE ALGEBRAIC GRADE CHANGE SHALL BE NO GREATER THAN 10% FOR A MINIMUM OF 5 FEET EACH DIRECTION FROM THE LOW POINT OF THE DRIVEWAY.
8. AREA DRAINS ARE REQUIRED BETWEEN EACH DRIVEWAY UNLESS APPROVED BY THE ENGINEER. A MAXIMUM OF TWO DRIVEWAYS BETWEEN AREA DRAINS.
9. 14% MAXIMUM DRIVEWAY GRADE UNLESS OTHERWISE APPROVED BY THE CAPITAL CITY FIRE DEPARTMENT AND THE ENGINEER.
10. FOR ROADWAYS WITH SIDEWALKS MATCH STANDARD DETAIL 105 FOR DRIVEWAY ALIGNMENT.

SCALE: NTS DATE: 7/5/95
DRAWN BY: DRW/STAFF CHECKED BY: JB/STAFF
APPROVED BY: 
REVISED: 8/14/2011 STANDARD 103B

CITY AND BOROUGH OF JUNEAU, ALASKA
DRIVEWAY FOR STREETS WITH AREA DRAINS
NOTES:
1. SLOPE OF HEADWALL SHALL BE 2:1 OR FLATTER AND SHALL BE DETERMINED BY THE ENGINEER.
2. TRASH RACKS SHALL BE REQUIRED ON HEADWALLS AT UPSTREAM ENDS OF CULVERTS ENTERING CLOSED STORM DRAIN SYSTEMS.
3. METER, "EL" AND THREADED ROD SHALL BE CONSTRUCTED OF FLAT BARS OF EITHER 6061 ALUMINUM OR HOT DIPPED GALVANIZED STEEL.
4. INSTALL "EL" BRACKETS A MINIMUM OF 2" INTO WET CONCRETE.
5. IF CORRUGATED PLASTIC PIPE IS USED, EMPTY WATER FROM CORRUGATIONS ON MITERED ENDS AND THEN COMPLETELY FILL VOIDS WITH CONCRETE GROUT.
6. NO HEADWALLS ARE TO BE CONSTRUCTED WITHIN 10FT RIGHT-OFF-WAY UNLESS DIRECTED BY THE ENGINEER.
NOTES:
1. SLOPE OF HEADWALL SHALL BE 2:1 OR FLATTER AND SHALL BE DETERMINED BY THE ENGINEER.
2. TRASH RACKS SHALL BE REQUIRED ON HEADWALLS AT UPSTREAM ENDS OF CULVERTS ENTERING CLOSED
   STORM DRAIN SYSTEMS. SEE STANDARD 104A.
3. NO HEADWALLS ARE TO BE CONSTRUCTED WITHIN ADOT RIGHT-OF-WAYS UNLESS DIRECTED BY THE ENGINEER.
4. IF CORRUGATED PLASTIC PIPE IS USED, EMPTY WATER FROM CORRUGATIONS ON MITERED ENDS AND THE
   COMPLETELY FILL Voids WITH CONCRETE.
NOTES
1. "A" EQUALS WIDTH OF DRIVEWAY AT PROPERTY LINE. MAXIMUM WIDTH SHALL BE 24' FOR SINGLE FAMILY RESIDENCES AND 32' FOR COMMERCIAL FACILITIES OR COMBINED DRIVEWAYS. DRIVEWAYS MAY NOT BE CONSTRUCTED WITHIN 6' OF THE PROPERTY LINE OR 40' FROM THE EDGE OF PAVEMENT AT INTERSECTIONS.

2. ALL CONCRETE SHALL MEET THE REQUIREMENTS OF STANDARD SPECIFICATION 03303 - SIDEWALK CURB AND GUTTER. THE CURING COMPOUND CONCRETE INTERNATIONAL CORPORATION ASHFORD FORMULA OR APPROVED EQUAL SHALL BE APPLIED PER THE MANUFACTURER’S RECOMMENDATIONS.

3. COLD JOINT REQUIRED BETWEEN SIDEWALK AND DRIVEWAY AND BETWEEN SIDEWALK AND CURB.

4. ALL CONCRETE WITHIN THE DRIVEWAY CURB CUT SHALL BE A MINIMUM 6" THICK AND SHALL BE Poured ON A 4" BASE OF 0-1 COMPACTED TO 90% OF ITS MAXIMUM DENSITY.

5. 6"x 6" #10 GAUGE WIRE MESH REINFORCEMENT INSTALLED AT MID-DEPTH OR #4 REBAR SPACED APPROPRIATELY MAY BE SUBSTITUTED FOR FIBER MESH REINFORCED CONCRETE. ALL STEEL MUST HAVE A MINIMUM OF 2" OF CONCRETE COVER.

6. RELIEF JOINT REQUIRED IF "A" IS GREATER THAN 15'.

CITY AND BOROUGH OF JUNEAU, ALASKA
DRIVEWAY CURB CUT

SCALE: NTS
DRAWN BY: TAD
CHECKED BY: JB/STAFF
APPROVED BY: [Signature]
REVISED: 8/14/2011
STANDARD 105
NOTES:
1. CONCRETE INTERNATIONAL CORPORATION ASHFORD FORMULA OR APPROVED EQUAL SHALL BE APPLIED AS A CURING COMPOUND. APPLICATION SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS.
2. COLD JOINT REQUIRED BETWEEN SIDEWALK, CURB AND RAMP.
3. WIRE MESH IN CONCRETE, 4" COMPACTED 0-1 BASE AND 24" ADDITIONAL NON-FROST SUSCEPTIBLE MATERIAL AS SHOWN IN GENERAL SIDEWALK STANDARD 111A ARE REQUIRED FOR CURB RAMPS. FIBER REINFORCING MAY BE ALLOWED PER THE ENGINEER.
4. MINIMUM THICKNESS ON ALL CONCRETE IS 6" WITHIN THE RAMP AND TRANSITIONS.
5. DETECTABLE WARNING, YELLOW TRUNCATED DOMES, FULL LENGTH OF CURB CUT, 2' WIDE.

CITY AND BOROUGH OF JUNEAU, ALASKA
ACCESSIBLE SIDEWALK RAMP

STANDARD 106
NOTES:
1. WHEN CURB AND GUTTER IS NOT REQUIRED, THE RADIUS TO THE EDGE OF PAVEMENT SHALL NOT BE LESS THAN 40 FEET.
2. THE DISTANCE FROM THE RADIUS POINT TO THE CENTERLINE OF THE NEAREST INTERSECTION SHALL NOT BE LESS THAN 150 FEET.
3. CROWN GRADE SHALL BE 3% FOR ASPHALTED STREETS, AND BETWEEN 3% TO 5% FOR GRAVEL STREETS AS DETERMINED BY THE ENGINEER.
4. WHEN CURB, GUTTER AND SIDEWALK ARE CONSTRUCTED, THE RADIUS OF THE CUL-DE-SAC RIGHT OF WAY MAY BE REDUCED TO 50.
5. UTILITY PEDESTALS AND ELECTRICAL TRANSFORMERS MAY REQUIRE EASEMENTS TO BE PLATTED BEYOND THE RIGHT OF WAY LINE.
6. CONSTRUCTION SPECIFICATIONS SHALL BE IN ACCORDANCE WITH STANDARD DETAILS.
7. TOTAL GRADE ACROSS THE CUL-DE-SAC IS NOT TO EXCEED 5%.
NOTES:
1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO SECTION 02708-GUARDRAIL OF THE MOST CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CIVIL ENGINEERING PROJECTS AND SUBDIVISION IMPROVEMENTS.
2. W 6"x8"x6'-0" STEEL POST MAY BE SUBSTITUTED FOR PRESSURE TREATED POST.
3. 2" MINIMUM OFFSET FROM EDGE OF PAVEMENT OR REQUIRED LANE WIDTH. SEE STANDARD DETAIL 102B.
NOTES:
1. CONCRETE SHALL BE CLASS A, FIBER MESH REINFORCED IN ACCORDANCE WITH CBJ STANDARD SPECIFICATION SECTION 03303 - SIDEWALK, CURB AND GUTTER. REBAR IN CURB AND WIRE MESH IN SIDEWALK IS ALLOWED AS SHOWN.
2. CONCRETE INTERNATIONAL CORPORATION ASHFOARD FORMULA OR APPROVED EQUAL SHALL BE APPLIED AS A CURING COMPOUND. APPLICATION SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS.
3. COLD JOINTS ARE REQUIRED EVERY 10' MAXIMUM. ALL JOINTS AND SEAMS SHALL BE EDGED.
4. STEEL TROWELING FINISH REQUIRED PRIOR TO BROOM FINISHING ON ALL SURFACES.
5. CURB AND GUTTER TRANSITION DESIGN TO BE APPROVED BY THE ENGINEER.
6. TYPE II AND TYPE III CURB TO BE USED AS DIRECTED BY THE ENGINEER IN ACCORDANCE TO CBJ STANDARD 104B.
7. ALL REINFORCING STEEL MUST HAVE A MINIMUM OF 2" OF CONCRETE COVER WHEN SUBSTITUTED FOR FIBER MESH.
8. WHEELCHAIR ACCESS RAMPS SHALL BE REQUIRED ON ALL NEW SIDEWALK CONSTRUCTION AT CROSSWALKS AND INTERSECTIONS. ACCESS RAMPS TO BE CONSTRUCTED IN ACCORDANCE TO CBJ STANDARD 106.
9. 4" CONCRETE SIDEWALK SUBBASE SHALL BE 2" D-1, 4" 2" MINUS AND 18" OF SHOT ROCK. 2" ASPHALT SIDEWALK SUBBASE SHALL BE 2" D-1, 18" 2" MINUS AND 18" SHOT ROCK.
10. MINIMUM LONGITUDINAL SLOPE FOR CURB AND GUTTER SHALL BE NO LESS THAN 0.5%.

CITY AND BOROUGH OF JUNEAU, ALASKA
CONCRETE SIDEWALK,
TYPE I CURB & GUTTER
STANDARD 111A
NOTEm:
1. CONCRETE SHALL BE CLASS A, FIBER MESH REINFORCED IN ACCORDANCE WITH CBJ STANDARD SPECIFICATION SECTION 03303 - SIDEWALK, CURB AND GUTTER. REBAR IN CURB IS ALLOWED AS SHOWN.
2. CONCRETE INTERNATIONAL CORPORATION ASHFORD FORMULA OR APPROVED EQUAL SHALL BE APPLIED AS A CURING COMPOUND. APPLICATION SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS.
3. COLD JOINTS ARE REQUIRED EVERY 10' MAXIMUM. ALL JOINTS AND SEAMS SHALL BE EDGED.
4. STEEL TROWELING FINISH REQUIRED PRIOR TO BROOM FINISHING ON ALL SURFACES.
5. CURB AND GUTTER TRANSITION DESIGN TO BE APPROVED BY THE ENGINEER.
6. ALL REINFORCING STEEL MUST HAVE A MINIMUM OF 2" OF CONCRETE COVER WHEN SUBSTITUTED FOR FIBER MESH.
7. THE MINIMUM LONGITUDINAL SLOPE FOR CURB AND GUTTER SHALL BE NO LESS THAN 0.5%.
8. WHEELCHAIR ACCESS RAMPS SHALL BE REQUIRED ON ALL NEW SIDEWALK CONSTRUCTION AT INTERSECTIONS AND CROSSWALKS. ACCESS RAMPS TO BE CONSTRUCTED IN ACCORDANCE WITH CBJ STANDARD 106.
9. TYPE II ROLL CURB & GUTTER AND TYPE III VALLEY GUTTER MAY BE USED ONLY WITH APPROVAL FROM ENGINEER AND CBJ STREET DEPARTMENT.

CITY AND BOROUGH OF JUNEAU, ALASKA
CURB & GUTTER
TYPES II & III
NOTES:
1. WHEELCHAIR ACCESS RAMPS SHALL BE REQUIRED ON ALL NEW SIDEWALK CONSTRUCTION AT INTERSECTIONS AND CROSSWALKS. ACCESS RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CBJ STANDARD 106.
2. CURB AND GUTTER TRANSITION DESIGN TO BE APPROVED BY THE ENGINEER.
3. ALL REINFORCING STEEL MUST HAVE A MINIMUM OF 2" OF CONCRETE COVER. FIBER MESH CONCRETE MAY BE ALLOWED AS APPROVED BY THE ENGINEER FOR ROADS WITH GRADES OF LESS THAN 6%.
4. ALL JOINTS AND SEAMS SHALL BE EDGED. COLD JOINTS SHALL BE A MAXIMUM OF 10' O.C.
5. THE MINIMUM GRADE FOR CURB AND GUTTER TO BE NO LESS THAN 0.5%.
6. STEEL TROWELING FINISH REQUIRED PRIOR TO BROOM FINISHING ON ALL SURFACES.
7. CONCRETE INTERNATIONAL CORPORATION ASHFOUR FORMULA OR APPROVED EQUAL SHALL BE APPLIED AS A CURING COMPOUND. APPLICATION SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS.
NOTES
1. UNDERDRAINS SHALL BE CONNECTED INTO A STORMWATER SYSTEM OR OPEN DRAINWAY AS APPROVED BY THE ENGINEER.
2. UNLESS OTHERWISE SHOWN ON PLANS, UNDERDRAIN SHALL BE INSTALLED UNDER THE ROADWAY DITCH.
3. WHEN TRENCH IS UNDER A ROADBED, PAVED DITCH, OR OTHER STRUCTURE, THE WASHED ROCK BACKFILL MATERIAL AND FILTER CLOTH SHALL COMPLETELY FILL THE TRENCH.
4. NON-PERFORATED PIPE MAY BE USED AT THE OUTLET ENDS OF UNDERDRAINS AS APPROVED BY THE ENGINEER.
5. UNLESS CONNECTED TO A STORMWATER SYSTEM THE OUTFALL END OF AN UNDERDRAIN PIPE SHALL BE COVERED WITH GALVANIZED NO. 17 GAGE HARDWARE CLOTH SCREEN WITH 1/2" x 1/2" MESH OPENINGS. THE SCREEN SHALL BE CLAMPS TO WITH A STAINLESS STEEL CLAMP. THE OUTLET END OF THE UNDERDRAIN SHALL BE MARKED WITH A SUITABLE MARKER APPROVED BY THE ENGINEER.
6. THE UPSTREAM END OF THE UNDERDRAIN SHALL COMMENCE WITH A CLEANOUT. CLEANOUTS ARE REQUIRED IN THE UNDERDRAIN PIPE EVERY 150 FEET.
NOTES:
1. MAINTAIN MINIMUM 45" UGOBSTRUCTED CLEARANCE BENEATH CANTILEVERED ARM (NOT INCLUDING DEPTH OF DITCH). BOX SHALL BE NO HIGHER THAN 48" ABOVE ROADWAY.
2. "D" SHALL BE 1/3 OF THE LENGTH OF THE CANTILEVERED ARM.
3. MAILBOXXES INSTALLED ON ROADWAYS THAT HAVE A SIDEWALK SHALL BE INSTALLED WITH THE FRONT OF THE MAILBOX FLUSH WITH THE BACK OF SIDEWALK. MAILBOXXES ON ROADWAYS WITHOUT CURB & GUTTER SHALL BE INSTALLED 12" BEYOND THE TRAVELED WAY.
4. REFLECTORS SHALL BE YELLOW AND HAVE A MINIMUM AREA OF 4.5 SQ. IN. REFLECTORS SHALL BE ACRYLIC PRISMATIC TYPE AND CONFORM TO AASHTO M290, OR REFLECTIVE SHEETING TYPE AND CONFORM TO AASHTO M288, TYPE II OR III.
5. ALL WOOD USED IN MAILBOX INSTALLATION SHALL BE PRESSURE TREATED FOR GROUND CONTACT. ALL CUTS AND DRILLED HOLES SHALL BE TREATED WITH PENTACHLOROPHENOL OR EQUAL.
6. SEE STATE OF ALASKA STANDARD DRAWING M 20.12, "MAILBOX LOCATION", FOR LOCATING POSTS AND BOXES ALONG STATE OF ALASKA HIGHWAYS.
7. CANTILEVERED ARM LENGTHS GREATER THAN 5' REQUIRE A PLAN TO BE SUBMITTED TO CBJ ENGINEERING FOR APPROVAL.
8. NEWSPAPER RECEPTACLES, ETC. MAY BE ATTACHED ON THE SIDE OF THE CANTILEVERED ARM. NO ATTACHMENTS ARE ALLOWED UNDER THE CANTILEVERED ARM TO MAINTAIN CLEARANCE.
2' x 4' CROSS BRACE
(TYP OF TWO)

SIDE VIEW

1/4" BOLT, NUT & WASHER
3/8" FLATHEAD SCREWS

6"
1" x 2" WOOD STRIPS
2" x 4" CROSS BRACE
2" x 4" BRACES
4" x 4" WOOD POST
30"

FRONT VIEW

NOTES
1. CANTILEVERED GANG MAILBOXES SHALL CONFORM IN ALL OTHER ASPECTS TO STANDARD 116.
2. EACH STRUCTURE SHALL SUPPORT A MAXIMUM OF TWO MAILBOXES.
3. CANTILEVERED ARM LENGTHS GREATER THAN 9', REQUIRE A PLAN TO BE SUBMITTED TO CBJ ENGINEERING FOR APPROVAL.
4. OTHER DESIGNS MUST BE SUBMITTED TO CBJ ENGINEERING FOR APPROVAL.
1. The street lighting electrical distribution system shall be designed by an Alaskan registered electrical engineer in compliance with the national electrical code.

2. Street lights shall be constructed at intersections with spacing between lights not to exceed 250' or as directed by the engineer.

3. A photovoltaic cell shall be mounted on each pole in accordance with the manufacturer’s specifications.

4. Underground wiring between lights to be installed in PVC conduit. All conduit installed above ground to be galvanized rigid steel (GRS).

5. A Type 1A junction box is required for each light pole at a location determined by the electrical engineer. Wiring shall be continuous with splicing at light poles and junction boxes only.

6. Provide double fused connector kits with fuses in the base of each pole as specified by the electrical engineer.

7. Provide a load center and/or heavy duty, stainless steel fused disconnect(s) as required. Specifications and location of load center and/or disconnect(s) to be determined by the electrical engineer.

8. LED luminaries shall be Entel #LED-STR-36-HT-D34-LED-B-UL-350 or approved equal and comply with UL 1598. Approved for wet locations and IESNA RP-8 for light distribution. The housing shall be rigid formed, weather-tight and light-tight enclosures. Sheet metal shall be corrosion-resistant aluminum. Exposed hardware shall be stainless steel and plastic components shall be resistant to yellowing.

9. (4) 1”X36” embedded galvanized anchor bolts with 4” min hook, 6” of thread, leveling nuts and protective caps. Bolts shall meet ASTM-A36 with min yield stress of 36.0 ksi.

10. #8 Cu grounding conductor bonded to anchor bolts, light pole and equipments ground routed with (3) #8 Lighting circuit conductors.

11. (6) #6 bars spaced equally inside 30” dia. #2 bar spiral start spiral 3” below top and 3” above bottom with 1 turn every 3”.

12. Backfill with 12” of 0-1 around footing side and bottom. Compact to 95% maximum density.
THE WORD "LIGHTING" TO BE EMBOSSED ON COVER OF JUNCTION BOX.

BRASS "L" BOLTS AND NUTS

9 GAUGE WELDED WIRE FRAME

SECTION A-A

TYPE I & I-A JUNCTION BOX

DIMENSIONS (IN.)

<table>
<thead>
<tr>
<th>TYPE I</th>
<th>TYPE I-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15</td>
</tr>
<tr>
<td>B</td>
<td>15 3/4</td>
</tr>
<tr>
<td>C</td>
<td>13 1/2</td>
</tr>
<tr>
<td>D</td>
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<td>E</td>
<td>8 1/2</td>
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<tr>
<td>F</td>
<td>6</td>
</tr>
<tr>
<td>G</td>
<td>8 1/2</td>
</tr>
<tr>
<td>H</td>
<td>14 1/2</td>
</tr>
<tr>
<td>J</td>
<td>14 1/2</td>
</tr>
<tr>
<td>K</td>
<td>3 1/4</td>
</tr>
</tbody>
</table>

ALTERNATE REINFORCING TYPE I-A ONLY

SECTION B-B

NOTES:

1. EACH FRAME AND COVER FOR TYPE I & I-A JUNCTION BOXES SHALL BE EITHER ALUMINUM OR CAST IRON.

2. JUNCTION BOXES LOCATED IN A SIDEWALK SHALL BE INSTALLED WITH A 1/2" PREFORMED BITUMINOUS JOINT MATERIAL AROUND ITS PERIMETER.

3. ALL CONDUITS SHALL BE BONDED TO FORM A CONTINUOUS ELECTRICALLY SECURE SYSTEM WITH THE GROUND AT THE LOAD CENTER JUNCTION BOX.

4. ALL JUNCTION BOX COVERS SHALL BE BONDED TO GROUND WITH COPPER BRAID OF #8 AWG CROSS SECTION. FOR TYPES I & I-A THE LENGTH SHALL BE 3 FEET.

5. ALL CONDUITS SHALL BE GROUTED IN KNOCKOUT SECTIONS IN ACCORDANCE WITH THE ALASKA SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION.

6. JUNCTION BOXES SHALL BE SET FLUSH WITH THE SURROUNDING SURFACE EXCEPT IN A UNPAVED SHOULDER, WHEN THEY SHALL BE LOCATED 2" BELOW GRADE.
NOTES:

1. EACH FRAME AND COVER FOR TYPE II AND TYPE III JUNCTION BOXES SHALL BE OF CAST IRON FOR LIGHT DUTY USE WITH A MINIMUM WEIGHT OF 210 POUNDS.

2. JUNCTION BOXES LOCATED IN A SIDEWALK SHALL BE INSTALLED WITH A \(\frac{1}{2}\) INCH PREFORMED BITUMINOUS JOINT MATERIAL AROUND ITS PERIMETER.

3. ALL CONDUITS SHALL BE BONDED TO FORM A CONTINUOUS ELECTRICALLY SECURE SYSTEM WITH THE GROUND AT THE LOAD CENTER JUNCTION BOX.

4. ALL JUNCTION BOX COVERS SHALL BE BONDED TO GROUND WITH COPPER BRAID OF #8 AWG CROSS SECTION. FOR TYPES II & III, THE LENGTH SHALL BE 6 FEET.

5. ALL CONDUITS SHALL BE ROUTED IN KNOCKOUT SECTIONS IN ACCORDANCE WITH THE ALASKA SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION.

6. JUNCTION BOXES SHALL BE SET FLUSH WITH THE SURROUNDING SURFACE EXCEPT IN A UNPAVED SHOULDER, WHEN THEY SHALL BE LOCATED 2" BELOW GRADE.
NOTES:
1. ALL CABLES AND CONDUIT SHALL BE 6" MIN AWAY FROM ALL CBJ DRAINAGE, WATER, AND SEWER STRUCTURES.
2. PEDESTALS SHALL BE MARKED AND IDENTIFIED BY UTILITIES WITH 6 FOOT TALL MARKING POLES.
3. CONCRETE DUCTS MUST HAVE PRIOR APPROVAL BY THE ENGINEER.
4. PLACEMENT OF PEDESTALS AND TRANSFORMERS SHALL BE APPROVED BY THE ENGINEER.
5. ALL UTILITIES SERVING A LOT SHALL BE PLACED TOGETHER AND SHALL BE PLACED AT THE INTERSECTION OF THE RIGHT-OF-WAY AND A COMMON LOT LINE.
6. ALL PRIVATE UTILITIES TRAVERSING THE RIGHT-OF-WAY SHALL CROSS PERPENDICULAR TO THE CENTERLINE AND SHALL BE GROUPED IN TIGHT BUNDLES. THE MINIMUM DEPTH WITHIN THE ROADWAY PRISM SHALL BE 36" BELOW SUBGRADE TO TOP OF THE HIGHEST CONDUIT.
7. ALL TRENCHING WITHIN THE ROADWAY SHALL BE CONSTRUCTED PER CBJ STANDARD 125, PAVEMENT RESURFACING AND TRENCH DETAIL.
NOTES:

1. STAIRWAY AND LANDING TREAD SHALL BE STEEL GRATING 1" X 3½" BEARING BARS AND 1/4" CROSS BARS, ERVERSON 19W4 OR EQUAL. STAIRWAY TREAD AND LEADING EDGE OF LANDING WILL BE SUPPLIED WITH CARRIER PLATES. MINIMUM TREAD WIDTH SHALL BE 11". GRATING SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM-A-153.

2. POST BASES SHALL BE GALVANIZED, SIMPSON EPB 44A OR EQUAL.

3. ALL CONNECTIONS SHALL BE MADE WITH GALVANIZED FASTENINGS IN ACCORDANCE WITH THE UNIFORM BUILDING CODE. WASHERS SHALL BE USED ON ALL BOLTS NOT BEARING ON METAL. NO NAILING ALLOWED.

4. DIAGONAL BRACING TO 4" X 6" POST, CONNECTION REQUIREMENTS:
   - TREADS TO STRINGERS: 1/2" x 5" LAG SCREWS (3) EA END
   - 4 X 6 POST TO STRINGER: 3/8" x 3" LAG SCREWS (2) EA SIDE
   - 4 X 6 POST TO BASE: 1/2" x 10" BOLTS (2) EA


6. ALL WOOD SHALL BE TREATED WITH ACA OR CCA IN ACCORDANCE WITH LP-22. RETENTION OF THE DRY SALT SHALL BE A MINIMUM OF 0.5 LBS. PER CUBIC FOOT. LUMBER SHALL BE HEM-FIR, NO. 2 AND BETTER.

7. FOOTINGS SHALL BE ON UNDISTURBED EARTH AND A MINIMUM OF 0.52" BELOW THE SURFACE, EXCEPT BEDROCK FOOTINGS.

8. WHERE "H" IS 18" TO 6', 1 PANEL OF "X" BRACING SHALL BE USED. WHERE "H" EXCEEDS 6' 2 PANELS OF "X" BRACING SHALL BE USED.

9. WOOD HANDRAILS SHALL BE SMOOTH, SPLINTER FREE AND MADE OF ROT RESISTANT WOOD.
Standard Stairway

END RETURN
PROFILE

2"x 4" INTERMEDIATE RAIL (TYP)

42" MIN FROM TREAD TO TOP GUARD (TYP)

34" TO 38" FROM TREAD TO TOP HANDRAIL (TYP)

HANDRAIL EXTENDS WIDTH OF ONE TREAD

34" TO 38" FROM TREAD TO TOP HANDRAIL (TYP)

6" O.C. MAX

6" O.C. MAX

VARIIES 36" MIN 16" MAX

16" MAX BETWEEN LANDINGS 12" MAX RISE BETWEEN LANDINGS

4"x6" TERMINAL POST (TYP) SHALL ALSO BE USED WHERE HANDRAIL TIES INTO EXISTING LANDING

4"x 12" STRINGER (TYP)

2"x 6" BRACING (TYP) (SEE PAGE 1)

6"x8"x1/2" STEEL PLATE

6" VERTICAL

2"x 4" BLOCK (TYP)

2"x 4" POST (TYP)

4"x4" LAG BOLT TO END POST

2"x4" RETURN HORIZONTAL BACK TO POST MITER ENDS

HANDRAIL EXTENDS WIDTH OF ONE TREAD TO HORIZONTAL

HANDRAIL RETURN BACK TO POST METER ENDS

4"x4" END POST

4"x6" END POST

TOP GUARD

INSIDE POST METER CUTS TO MATCH

INTERMEDIATE RAILS

HANDRAIL SPACER (HANDRAIL NOT SHOWN)

RETURN TO POST

2"x 4" BRACE SECURE TO POST

27" MAX

TYPICAL STAIRWAY PROFILE
FOR DETAILS ON RAIL SPACING, HANDRAILS AND RAIL HEIGHT
SEE STANDARD 122-1

TREAD AND RISER SEE STANDARD 122-3

(2) 1/2" X 5" BOLTS

(2) 1/2"X10" STEEL PLATE

6" VERTICAL

2"x 4" BLOCK (TYP)
ADJUSTABLE HEIGHT RISER

EXPANDED METAL SPOT WELDED TO 1" X 1/4" X 35-1/2" PLATE

EXPANDED METAL RISER 1" X 1/8" X 35-1/2" PLATE
5/16" X 1" HEAVY HEX HEAD MACHINE SCREW

EXPANDED METAL RISER 5/16" X 1-1/2" HEAVY HEX HEAD MACHINE SCREW
1" X 1/8" ANGLE

EXPANDED METAL RISER 1" X 1/4" X 35-1/2" PLATE TAPPED FOR 5/16" SCREWS
5/16" X 1" MACHINE SCREW

TOPICAL BOTTOM OF RISER

FOR TREADS WITH 1/2" WIDE BEARING BAR OPENINGS, USE 1" MACHINE SCREW

TOPICAL TOP OF RISER

1/2" X 8" BOLTS (2 EACH)

BOTTOM OF STAIRWAY SECTION

EPOXY GROUT
5/16" X 3" ANCHOR BOLT AT MAX 12" OC

BOTTOM OF RISER TO CONCRETE CONNECTION

#4 BARS AS SHOWN MINIMUM 2" COVER

CONCRETE FTC 6" X 32" X 48"

BOTTOM OF STAIRWAY PROFILE

SCALE: NTS DATE: 7/24/98 CITY AND BOROUGH OF JUNEAU, ALASKA
DRAWN BY: TAD CHECKED BY: JB/STAFF
APPROVED BY: STANDARD STAIRWAY
REVISED: 8/14/2011 STANDARD 122-4
NOTES:
1. TRENCHES SHALL BE WITHIN 20' OF PERPENDICULAR TO CENTER-LINE OF ROADWAY UNLESS APPROVED BY THE ENGINEER.
2. MINIMUM TRENCH WIDTH SHALL BE NOMINAL PIPE DIAMETER ("D") PLUS 2'.
3. FILTER FABRIC SHALL BE USED AS DIRECTED BY THE ENGINEER. ATTACH TO TRENCH SIDEWALL A MIN OF 12" ABOVE TOP OF PIPE.
4. BEDDING & BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY WITHIN THE RIGHT-OF-WAY AND THROUGHOUT THE DEPTH OF EACH LIFT. EXISTING MATERIAL FROM THE TRENCH SHALL BE USED UNLESS DETERMINED UNSUITABLE BY THE ENGINEER.
5. LIFT DEPTH SHALL BE 12' MAXIMUM. ADDITIONAL DEPTH UP TO 18' MAXIMUM MAY BE APPROVED BY THE ENGINEER.
6. BEDDING MATERIAL SHALL BE CLASS "A" PER STANDARD SPECIFICATIONS SECTION 2203 TRENCHING.
7. PIPE SHALL BE SEPARATED BY 6" MIN FROM SOULDER, BEDROCK OR SIMILAR MATERIALS.
NOTES:
1. ORF FRAMES SHALL BE RAISED TO FINISH GRADE PRIOR TO PAVING. STRUCTURES NOT WITHIN ALLOWABLE TOLERANCES AFTER PAVING SHALL BE CONSTRUCTED TO THIS DETAIL.
2. ALL SAWCUT JOINTS SHALL BE SEALED WITH PGSB-22. MINIMUM WIDTH OF SEAL ON ALL JOINTS SHALL BE 3".
3. ALL SAWCUTS AND EXCAVATIONS SHALL BE PROTECTED WITH STEEL PLATES OR OTHER SUITABLE MATERIALS, IF EXPOSED.
4. CONCRETE SHALL BE 4000 PSL REBAR TO BE #4 AS SHOWN. FIBER MESH CONCRETE MAY BE SUBSTITUTED FOR REBAR.
5. THE DIAGONAL OF THE CONCRETE COLLAR SHALL BE CONSTRUCTED PARALLEL TO THE TRAFFIC FLOW.
6. REPLACEMENT OF EXISTING ASPHALT THICKER THAN 3" SHALL BE PAVED IN TWO EQUAL LIFTS.

SCALE: NTS  
DATE: 1/9/09  
CITY AND BOROUGH OF JUNEAU, ALASKA  
CONCRETE COLLAR  
REVISED: 8/14/2011  
STANDARD 126
NOTES:
1. SIGN PANEL MATERIAL AND THICKNESS SHALL CONFORM TO MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. SIGN SIZE AND PLACEMENT SHALL CONFORM TO MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE ALASKA SUPPLEMENT (SEE LATEST EDITION).
2. SIGN POST SHALL BE INSERTED INTO HOLDER A MINIMUM OF 0'-6" AND A MAXIMUM OF 1'-0".
3. STREET NAMES SHALL BE ON 6" EXTRUDED SIGN PANELS.
4. STREET SIGN PANELS SHALL BE BETWEEN 12 AND 36 INCHES IN LENGTH AND IN 6" INCREMENTS.
5. STREET NAME LETTERING SHALL BE 3 INCHES HIGH, SERIES C TYPE.
6. THE BRACKETS FOR THE EXTRUDED STREET SIGN PANELS SHALL HAVE A MINIMUM SPAN OF 5 INCHES.
7. A STREET NAME ASSEMBLY SHALL BE INSTALLED ON EACH STOP SIGN AND WILL SHOW THE STREET NAMES OF BOTH INTERSECTING STREETS.
8. SNUGLY COVER TOP OF POST WITH EXTRUDED TELESPAR POST CAP.
9. WIND WASHERS ARE REQUIRED ON FRONT SIDE OF SIGNS. THEY SHALL BE 2" DIA STAINLESS FENDER WASHERS OR APPROVED EQUAL AND MATCH THE COLOR OF THE SIGN.
NOTES:
1. SIGN SIZE AND PLACEMENT SHALL CONFORM TO MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE ALASKA SUPPLEMENT (SEE LATEST EDITION).
2. SIGN POST SHALL BE INSERTED INTO HOLDER A MINIMUM OF 0'-6" AND A MAXIMUM OF 1'-0".

CITY AND BOROUGH OF JUNEAU, ALASKA
SIGN ASSEMBLY DOUBLE-POST

SCALE: NTS DATE: 10/15/98
DRAWN BY: TJP CHECKED BY: MS
APPROVED BY: [Signature] REVISED: 8/14/2011
STANDARD 127B
NOTES:
1. ALL OTHER ASPECTS OF MANHOLE CONSTRUCTION SHALL CONFORM WITH STANDARD 203.
2. MANHOLE ELEVATION SHALL CONFORM WITH STANDARD 205.
3. MANHOLE COVER AND FRAME SHALL CONFORM WITH STANDARD 206.
4. DROP CONNECTIONS ARE REQUIRED IF INFLOW INVERT ELEVATION IS MORE THAN 16" ABOVE THE
   OUTLET INVERT ELEVATION WHERE INVERT ELEVATIONS ARE LESS THAN 16" APART, A CHANNELIZED INVERT
   SHALL BE FORMED TO A MAXIMUM OF ONE INFLOW PIPE DIAMETER BELOW THE INFLOW PIPE INVERT.
5. STAINLESS STEEL PIPE SUPPORTS SHALL BE INSTALLED 3'-6" ON CENTER ON THE VERTICAL DROP PIPE.
6. A RELINER BRAND STAINLESS ADJUSTABLE CLAMPING BRACKET MAY BE USED IN PLACE OF THE ILLUSTRATED
   PIPE SUPPORT.
7. DROP PIPEING SHALL BE THE DIAMETER SPECIFIED BY THE MANUFACTURER OF THE DROP ASSEMBLY.
8. IF MORE THAN ONE DROP CONNECTION IS MADE, INSTALL A MIN. 6" DIAMETER MANHOLE.
9. FORCE LINE HOOD FOR INSIDE DROP BOWL, RELINER BRAND OR APPROVED EQUAL.

CITY AND BOROUGH OF JUNEAU, ALASKA
SANITARY SEWER
DROP MANHOLE
STANDARD 204

SCALE: NTS   DATE: 5/5/99
DRAWN BY: TAD  CHECKED BY: STAFF
APPROVED BY:
REVISED: 8/14/2011
MANHOLE LID
ABOVE GRADE

MANHOLE LID
BELOW GRADE

MANHOLE HEIGHTS ABOVE GRADE

<table>
<thead>
<tr>
<th>LOCATION OF MANHOLE</th>
<th>HEIGHT (H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNDEVELOPED &amp; SWAMPIFY AREAS</td>
<td>12&quot; to 24&quot;</td>
</tr>
<tr>
<td>HIGHWAY R.O.W.'S OUTSIDE OF TRAFFIC AREAS</td>
<td>1&quot; to 6&quot;</td>
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</tbody>
</table>

MANHOLE DEPTHS BELOW GRADE

<table>
<thead>
<tr>
<th>LOCATION OF MANHOLE</th>
<th>DEPTH (D)</th>
</tr>
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<tbody>
<tr>
<td>PAVED STREETS (SEE NOTE 1)</td>
<td>3/8&quot;-3/4&quot;</td>
</tr>
<tr>
<td>BACKYARDS, GRAVEL STREETS, AND TRAVELED ALLEY AREAS</td>
<td>6&quot; MAX</td>
</tr>
</tbody>
</table>

NOTES:
1. MANHOLE LID MUST CONFORM TO THE GRADE AND CROSS SLOPE OF THE STREET. SEE STANDARD 126.
2. MEASUREMENT SHALL BE TAKEN FROM THE TOP OF THE FRAME. SEE STANDARD 206A/206B.
3. FOR BACKYARDS, GRAVEL STREETS AND TRAVELED ALLEY AREAS, BACKFILL TO MATCH EXISTING GRADE.
4. SANITARY SEWER MAIN CLEANOUT ELEVATIONS SHALL CONFORM TO THIS STANDARD.
NOTES:
1. FRAME MUST BE MACHINED TO FIT WATERTIGHT NEOPRENE GASKET.
2. MANHOLE COVER SHALL BE WATER TIGHT WITH NO HOLES, SHALL HAVE THE WORD "SEWER", "WATER" OR "STORM DRAIN" CAST IN COVER AND SHALL BE PROVIDED WITH AN INTEGRAL POCKET LIFT HANDLE.
3. FRAME AND MANHOLE COVER DIMENSIONS SHALL BE IN ACCORDANCE WITH OLYMPIC CONSTRUCTION CASTINGS NO. WH30A WITH EGRESS LID, OR AN APPROVED EQUAL.
4. FRAME AND MANHOLE COVER SHALL BE DUCTILE OR CAST IRON AND A TYPE THAT WILL NOT CREATE A HAZARD FOR BICYCLE TRAFFIC.
5. IF MAINLINE IS 20" OR GREATER, PROVIDE MANHOLE WITH 30" OPENING IN COVER & FRAME.
6. ALL MANHOLE COVERS SHALL BE MACHINED BELOW FRAME AS SHOWN IN GASKET DETAIL ABOVE.
NOTES
1. FRAME MUST BE MACHINED TO FIT WATERTIGHT NEOPRENE GASKET.
2. MANHOLE COVER SHALL BE WATER TIGHT WITH NO HOLES. SHALL HAVE THE WORD(S) "SEWER", "WATER", OR "STORM SEWER" CAST IN COVER AND SHALL BE PROVIDED WITH AN INTEGRAL POCKET LIFT HANDLE.
3. FRAME AND MANHOLE COVER DIMENSIONS SHALL BE IN ACCORDANCE WITH OLYMPIC CONSTRUCTION CASTINGS NO. MH30A, OR AN APPROVED EQUAL. IF MAINLINE IS 20" OR GREATER, PROVIDE A MANHOLE WITH 30" MANHOLE COVER & FRAME.
4. FRAME AND MANHOLE COVER SHALL BE DUCTILE OR CAST IRON AND A TYPE THAT WILL NOT CREATE A HAZARD FOR BICYCLE TRAFFIC.
5. ALL CASTINGS SHALL BE MACHINED BELOW FRAME.
6. MANHOLE COVER AND FRAME SHALL MEET THE MINIMUM REQUIREMENTS OF STANDARD 206A.

SCALE: NTS
DATE: 12/2/96
CITY AND BOROUGH OF JUNEAU, ALASKA
DRAWN BY: DRW
CHECKED BY: STAFF
APPROVED BY:
REVISED: 8/14/2011
STANDARD 206B
CONCRETE ADAPTER WITH INTEGRAL GASKET (REMADE ADAPTER OR EQUAL)

ANY APPROVED PIPE

MANHOLE OR VAULT WALL

NON-SHRINK GROUT

STEEL OR IRON PIPE SLEEVE

OR CONCRETE COREHOLE

ANY APPROVED PIPE

"LINK-SEAL" OR APPROVED EQUAL

MANHOLE OR VAULT WALL

NON-SHRINK GROUT

ASBESTOS CEMENT OR CONCRETE ADAPTER

(SEE NOTE 4)

PVC SAND COLLAR

CORED HOLE IN MANHOLE WALL

STAINLESS STEEL BAND

MANHOLE OR VAULT WALL

GRAVITY PIPE

COMPRESSION RIDGES

FLEXIBLE SEAL ADAPTER

NEOPRENE BOOT (SEE NOTE 2)

GROUT TO MATCH INVERT OF PIPE

MANHOLE OR VAULT WALL

CORED HOLE IN MANHOLE WALL

STAINLESS STEEL BAND

HOPE FLANGE

MANHOLE OR VAULT WALL

CORED HOLE IN MANHOLE WALL

HOPE FORCENMAIN

LENGTH (SEE NOTE 5)

HOPE WELD OR FUSION COUPLER

COMPRESSION RIDGES

HOPE FORCENMAIN

COMPRESSION RIDGES

NEOPRENE BOOT (SEE NOTE 2)

GROUT TO MATCH INVERT OF PIPE

MANHOLE OR VAULT WALL

CORED HOLE IN MANHOLE WALL

NEOPRENE BOOT (SEE NOTE 2)

GROUT DETAIL

GROUT LEVEL

NOTES
1. ALL MANHOLE CONNECTIONS SHALL BE 100% WATER-TIGHT.
2. ALL PIPE SHALL EXTEND 2" INTO MANHOLE.
3. NEOPRENE BOOT ON THE FLEXIBLE SEAL ADAPTER SHALL BE A MINIMUM OF 3/8" THICK PER ASTM C-443, AND SHALL BE HELD IN PLACE WITH AN INTERNAL EXPANDING BAND SUCH AS "KOR-N-SEAL" OR APPROVED EQUAL.
4. PVC SAND COLLAR NOT ALLOWED IN AREAS OF A HIGH WATER TABLE.
5. HOPE FLANGE SHALL BE WELDED TO A SECTION OF PIPE AND INSERTED THROUGH THE FLEXIBLE SEAL FROM THE INSIDE OF THE MANHOLE. THE LENGTH OF HOPE REQUIRED TO BE DETERMINED BY THE INSTALLER.
6. ROMAC HOPE PIPE STIFFENER OR APPROVED EQUAL MAY BE REQUIRED FOR HOPE GRAVITY MAIN INSTALLATIONS. VERIFY WITH THE ENGINEER PRIOR TO INSTALLATION.

CITY AND BOROUGH OF JUNEAU, ALASKA
MANHOLE CONNECTION DETAILS

SCALE: NTS  DATE: 7/5/95
DRAWN BY: DRW  CHECKED BY: STAFF
APPROVED BY:  REVISED: 8/14/2011
STANDARD 209
NOTES:
1. DIAMETER OF HOLE CUT IN SEWER MAIN SHALL NOT EXCEED 0.25" LARGER THAN THE SADDLE TEE CONNECTION. TEE SHALL BE CENTERED OVER CUT IN PIPE AND CLAMPED WITH METAL BAND SO TEE GASKET FORMS A WATER-TIGHT SEAL.
2. WATER AND DEBRIS SHALL NOT BE ALLOWED TO ENTER THE SEWER MAIN DURING THE TAPPING OPERATION.
3. SWING TIES TO THE TEE MUST BE MEASURED AND FURNISHED TO CBJ ENGINEERING DEPARTMENT.
4. SADDLE TEE SHALL BE A ROMAC CB SEWER SADDLE OR AN APPROVED EQUAL.
ELEVATION VIEW

NOTES:
1. MARK SERVICE WITH GREEN PAINTED 2"x4" POST OR STAMP "S" IN TOP OF CURB. POST SHALL EXTEND TO DEPTH OF SERVICE LATERAL. REBAR W/CAP SHALL BE DRIVEN TO GROUND LEVEL. EXTEND WARNING TAPE TO TOP OF POST AND STAPLE IN PLACE.
2. ACCEPTABLE PIPE FOR USE WITHIN R.O.W. INCLUDES C900 PVC, SDR 35 PVC AND DUCTILE IRON.
3. MINIMUM CLEARANCE OF 18" REQUIRED BENEATH DITCH LINE. PIPE WITH LESS THAN 44" OF COVER SHALL BE INSULATED AS APPROVED BY THE ENGINEER.
4. DISTANCE FROM WYE TO MANHOLE AND TWO MEASURED DISTANCES FROM END OF SERVICE PIPE TO PERMANENT OBJECTS SHALL BE NOTED ON AS-BUILT PLANS.
5. SERVICE LATERAL SHALL END AT THE PROPERTY LINE WITH A BELL AT THE END OF PIPE.
6. LATERAL DEPTH AT PROPERTY LINE SHALL ACCOMMODATE EXISTING BUILDING SEWER OR FUTURE BUILDING SITE(S).
7. PIPE CONNECTIONS IN THE RIGHT-OF-WAY THAT DO NOT USE BELL AND SPIGOT SHALL CONFORM TO STANDARD 218.
8. CLEANOUT MAY BE REQUIRED AT THE DIRECTION OF THE ENGINEER.
CITY AND BOROUGH OF JUNEAU, ALASKA
SANITARY SEWER CONNECTION LINE

SCALE: 1" = 10' 1/2 SCALE

NOTES:
1. WHERE DEPTH OF Pipe MUST BE LESS THAN 44" INSULATION SHALL BE REQUIRED AS APPROVED BY THE ENGINEER.
2. MINIMUM GRADE SHALL BE 2% (1/4" PER FOOT).
3. MINIMUM PIPE DIAMETER SHALL BE 4".
5. MATERIALS AND INSTALLATION OF THE SEWER LATERAL SHALL CONFORM TO THE UNIFORM PLUMBING CODE. (NOTE: SDR 35 PVC IS NOT AN APPROVED MATERIAL FOR USE UNDER OR INSIDE THE FOUNDATION).
6. LATERAL DEPTH OF SANITARY SEWER SERVICE AT PROPERTY LINE SHALL ACCOMMODATE EXISTING SEWER LATERAL OR FUTURE BUILDING SITE(S). SEE STANDARD 213.
7. IF SEWER LATERAL IS LESS THAN 12" FROM FOUNDATION, SEWER LATERAL SHALL EITHER BE IRON PIPE OR A.B.S. SLEEVED IN IRON. IF SEWER LATERAL PASSES THROUGH THE FOUNDATION WALL, PIPE SHALL BE IRON AND THERE SHALL BE AT LEAST A 1" GAP IN CONCRETE AROUND PIPE. THIS GAP SHALL BE SEALED WITH FOAM.
8. CLEANOUT CONSTRUCTED OF "WYE" FITTING AND CAP OF SAME MATERIAL AS PIPE SHALL BE CONSTRUCTED WITHIN 2' TO 5' OF BUILDING FOUNDATION. AN ADDITIONAL CLEANOUT SHALL BE REQUIRED FOR EVERY 100' OF Pipe AND FOR EACH AGGREGATE BEND OF 135°.
9. IF SEWER LATERAL DIFFERS IN MATERIAL OR SIZE FROM REST OF LINE, A COUPLING, NON-SHEAR, EATHER MISSON FLEX SEAL, ROMAC INDUSTRIES LS51, OR APPROVED EQUAL IS REQUIRED. FOR LS51 COUPLING, MINIMUM LENGTH IS 6" FOR A 4" DIA PIPE AND 12" FOR A 6" DIA PIPE.
NOTES:
1. HOPE, C900 OR SDR 32.5 SEWER PIPE SHALL BE INSTALLED FOR THE LENGTH SHOWN FOR ALL SANITARY SEWER CROSSINGS AS DIRECTED BY THE ENGINEER.
2. FROM SDR 35 TO C900 AND C900 TO SDR 35 JOINTS SHALL BE TRANSITION BELL PVC ADAPTER, INSTALLED PER THE MANUFACTURERS RECOMMENDATION.
3. FROM SDR 35 TO HOPE AND HOPE TO SDR 35 JOINTS SHALL BE TRANSITION FITTING OR LSS-1, STAINLESS NON-SHEAR COUPLING, INSTALLED PER THE MANUFACTURERS RECOMMENDATION.
4. A FULL LENGTH OF WATER PIPE SHALL BE CENTERED UNDER OR OVER THE SANITARY SEWER PIPE AT ALL CROSSINGS. THE TEN FOOT MEASUREMENT SHALL BE TAKEN PERPENDICULAR TO THE WATER PIPE JOINT.
NOTES:
1. HDPE PORTION OF SEWER SERVICE LATERAL SHALL BE CONTINUOUS. LENGTH OF PIPE VARIES.
2. EXTEND 4" PVC SEWER LATERAL AT LEAST TO EDGE OF SHOULDER.
3. USE MINIMUM DISTANCE TO BEND PIPE TO INCREASE DEPTH.
4. INSULATE PIPE WITH ONE SIX FOOT LENGTH OF MCADUR WRAPAROUND PIPE INSULATION OR AN APPROVED EQUAL.
5. MAINTAIN 60" OF COVER TO THE PROPERTY LINE OR INSULATE FOR LOSS OF COVER DIMENSION.
6. INSTALL REBAR WITH GREEN CAP, 2"X4" WOOD POST FROM INVERT TO 4" ABOVE GROUND, PAINTED GREEN, EXTEND WARNING RIBBON TO TOP OF POST AND STAPLE TO TOP OF POST.

ELEVATION VIEW
ROMAC LSSI CLAMP COUPLING
REQUIRED FOR CONNECTIONS WITHIN THE RIGHT-OF-WAY

PIPE SIZE | LENGTH OF LSSI CLAMP
---|---
4" | 6"
5" | 12"
8" | 12"
10" | 12"
12" | 12"
14" | 12"
16" | 12"
21" | 20"
24" | 20"
27" | 24"
30" | 24"

PLAN VIEW
SECTION A-A

MISSION "FLEX-SEAL" ADJUSTABLE REPAIR COUPLING
ALLOWED FOR SERVICE CONNECTIONS OUTSIDE OF RIGHT-OF-WAY

NOTES
1. USE ONLY NON-SHEAR ROMAC INDUSTRIES LSSI SEWER CLAMP COUPLING FOR CONNECTING SEWER PIPES WITHIN THE RIGHT-OF-WAY.
2. A MISSION "FLEX-SEAL" ADJUSTABLE REPAIR COUPLING, OR APPROVED EQUAL OF APPROPRIATE SIZE AND TYPE AND INSTALLED AS PER MANUFACTURER'S INSTRUCTIONS MAY BE USED FOR CONNECTIONS OUTSIDE THE RIGHT-OF-WAY. FERNO BRAND AND OTHER RUBBER COUPLINGS ARE NOT APPROVED ALTERNATIVES.
3. BOLTS, WASHERS, NUTS, LUG, AND SHELL SHALL BE STAINLESS STEEL
4. CONNECTED PIPES SHALL BE CUT PERPENDICULAR AND INSERTED INTO COUPLING SO THAT ENDS ARE FLUSH.
5. WHEN CONNECTING TO AN EXISTING SERVICE USE COUPLING CONFORMING TO THIS DETAIL AT CONNECTION AT PROPERTY LINE.

CITY AND BOROUGH OF JUNEAU, ALASKA
COUPLING FOR DISSIMILAR SANITARY SEWER PIPES

SCALE: NTS
DRAWN BY: DRW
CHECKED BY: STAFF
APPROVED BY: D. REYNOLDS

DATE: 12/2/96
REVISED: 8/14/2011
STANDARD 218
RESIDENTIAL PUMP STATION

NOTES
1. RESIDENTIAL PUMP STATIONS SHALL BE COMPLETE FACTORY ASSEMBLED UNITS CONSISTING OF THE PUMPS, WET WELL BASINS, PIPING, ELECTRICAL AND CONTROLS.
2. PUMPS ARE TO BE SUBMERSIBLE PROGRESSIVE CAVITY GRINDER PUMPS. PUMPS MAY BE E-ONE D-SERIES, MODEL DHQ71, CRANE COMPANY, BARNES 1HP OR APPROVED EQUAL.
3. PUMP STATION BASIN ASSEMBLIES ARE TO BE FIBERCORE OR HIGH DENSITY POLYETHYLENE. PUMP STATION BASIN ASSEMBLIES MAY BE E-ONE D SERIES, BARNES EASYELECTRIC FACTORY PREWIRED BASIN PACKAGE WITH JUNCTION BOX OR APPROVED EQUAL.
4. CONTROL PANELS SHALL BE UL APPROVED, WALL MOUNTED, NEMA 4 X ENCLOSURE WITH PADLOCK LATCH. CONTROL PANELS SHALL BE SUPPLIED WITH ALARMS BOTH AUDIBLE AND VISUAL AS REQUIRED BY THE MANUFACTURER. THE PANEL SHALL BE FURNISHED WITH MANUAL PUMP START. APPROVED CONTROL PANELS INCLUDE E-ONE SENTRY, BARNES STEALTH OR APPROVED EQUAL.
5. PUMPS SHALL BE PROVIDED WITH THE STANDARD CHECK VALVE AND ANTI-SIPHON VALVE ON THE DISCHARGE PIPING. THE DISCHARGE PIPING SHALL ALSO HAVE A REDUNDANT CHECK VALVE ACCESSIBLE FROM THE INSIDE OF THE PUMP STATION BASIN.
6. IN AREAS OF HIGH GROUND WATER AN ANCHOR MAY BE REQUIRED. SEE MANUFACTURER'S RECOMMENDATION FOR SIZE OF ANCHOR.
7. CONNECTIONS TO GRAVITY LINE PER CBJ STANDARD DETAIL 216.
NOTES:

1. CONTROL PANEL SHALL BE LOCATED ON SIDE AWAY FROM THE ADJACENT ROADWAY, IF APPLICABLE.
2. WHEN 5 FEET OF CLEAR SPACE IS NOT AVAILABLE IN THE FRONT OF THE ELECTRICAL EQUIPMENT DUE TO
   PROPERTY LINES OR OTHER OBSTRUCTIONS, PROVIDE A THIRD GUARD POST AND REVERSE GENSET
   RECEPTACLE, METER, SWITCH, ETC., TO VAULT SIDE OF EQUIPMENT RACK.
PUMP STATION DETAILS

NOTES:
1. RUNGS AND RAILS OF LADDER SHALL BE CONSTRUCTED OF POLYPROPYLENE CONFORMING TO ASTM D-4101 WITH STEEL 1/2" GRADE 60 REINFORCING BAR CORES IN THE RUNGS AND 9/16" COLD DRAWN STEEL BAR CORES IN THE RAILS.
2. AN OFFSET SET OF LADDERS SHALL BE PLACED NEXT TO BAR SCREEN FOR ACCESS TO WETWELL FLOOR. LADDER MUST EXTEND ABOVE BAR SCREEN FOR OPERATOR SAFETY.

SCALE: NTS  DATE: 1/18/00  CITY AND BOROUGH OF JUNEAU, ALASKA
DRAWN BY: STAFF  CHECKED BY: JD/STAFF
APPROVED BY:  REVISED: 8/14/2011  STANDARD 220-3
1. SLAB SHALL BE REINFORCED WITH #6 @ 5" BOTTOM AND #4 @ 7" TOP. PROVIDE A MINIMUM OF #4 @ 12" TOP AND BOTTOM PERPENDICULAR TO MAIN REINFORCEMENT.
2. REINFORCING COVER SHALL BE 2-INCHES CLEAR AT TOP AND BOTTOM SURFACES.
3. LID TO BE H-20 LOADING PER MANHOLE MANUFACTURER.
1/4" GALV. MILD STEEL PLATE ON BOTH SIDES AND TOP OF EQUIPMENT. SEE NOTE 2

METER DISCONNECT
PORTABLE GENERATOR TRANSFER SWITCH
HOT DIPPED GALVANIZED FRAMING ERECTOR CHANNEL 1-1/2" x 1-1/2"
GENSET C/B
6"

NOTE:
1. LABEL METER DISCONNECT, PORTABLE GENSET CIRCUIT BREAKER, AND PORTABLE GENSET TRANSFER SWITCH WITH ENGRAVED PHENOLIC LABELS WITH 1" TALL CAPITAL LETTERS.
3. PROVIDE PUMP CONTROL PANEL PROTECTION WITH LOCKING DOOR CONSTRUCTED FROM 1/4" GALVANIZED MILD STEEL PLATE AS SHOWN.
4. SECURE 6" x 6" RUBBER PAD TO EXTERIOR FRONT DOOR WITH GALVANIZED HARDWARE, MOUNT OVER THE PADLOCK.

4" x 4" x 10' GALVANIZED STEEL POST SEE SHEET 5A

(2) 1/8" WEEP HOLES DRILLED ON OPPOSITE SIDES OF EACH POST

SHEET 5A

HINGES (TYP)
1"
FRONT
cabinet shield
1/4" GALV. MILD STEEL PLATE SEE NOTE 2

PUMP CONTROL PANEL
1" EXTERIOR RIGID INSULATION ON TOP AND SIDES
PADLOCK LOCATION SEE NOTE 4
SUPPORT STRAP

PADLOCK LOCATION: DRILL (2) 1/2" DIA HOLES: (1) IN THE EXTERIOR SIDE STEEL PLATE, (1) IN THE EXTERIOR LOUVERED DOOR. DRILL HOLES AT 48" ABOVE FINISHED GRADE.

FASTEN INSULATION TO OUTER DOOR

SECTION Y-Y

SHEET 5A

DETAIL - CABINET SHIELDS
NTS

SCALE: NTS
DATE: 1/18/00
CITY AND BOROUGH OF JUNEAU, ALASKA
PUMP STATION
CABINET SHIELDS
DRAWN BY: STAFF
CHECKED BY: JB/STAFF
APPROVED BY: [Signature]
REVISED: 8/14/2011
STANDARD 220-5
NOTES

1. LABEL METER DISCONNECT, PORTABLE GENSET CIRCUIT BREAKER, AND PORTABLE GENSET TRANSFER SWITCH WITH ENGRAVED PHENOLIC LABELS WITH 1" TALL CAPITAL LETTERS.

2. STAINLESS STEEL NEMA 4X JUNCTION BOX WITH TERMINAL LUGS, 12" X 12" X 6" MIN SIZE AS REQUIRED.


4. PROVIDE 1/4" GALVANIZED MILD STEEL PLATE AROUND THE PUMP CONTROL PANEL ON ALL SIDES AS SHOWN AND PER DETAIL SHOWN ON SHEET 5. CUT HOLES IN BOTTOM TO ALLOW CONDUIT TO ENTER AND EXIT THE PUMP CONTROL PANEL.

5. THE CBU WILL FILL THE SEAL OFF(S) UPON COMPLETION OF THE PROJECT.

BURY POST 3' MIN IN CONCRETE 12" ALL SIDES, CONCRETE SHALL BE 4000 PSI PER CBU SPEC SECTION 03301. REINFORCE WITH NO. 3 REBAR HOOPS 16" IN DIAMETER. SPACE HOOPS EVERY 6" IN DEPTH. NO. 2 REBAR VERTICALLY AROUND HOOPS IN FOUR PLACES. MAINTAIN 3" CLEARANCE BETWEEN REBAR AND OUTSIDE OF CONCRETE ALL SIDES. BACKFILL AROUND THE CONCRETE 12" ALL SIDES. BACKFILL PER CBU STANDARD SPECIFICATION 02202 AND COMPACT TO 95% PER MODIFIED DENSITY METHOD.
DOOR ELEVATION - PUMP PANEL
NO SCALE

NOTES:
1. SEE SHEET 220-10 FOR THE CONTROL LEGEND.
2. ALL PANEL ALARM INDICATOR LIGHTS SHALL HAVE PUSH-TO-TEST LIGHTS MOUNTED ON THE PANEL DOOR.
3. THE MAIN DISCONNECT AND PUMP DISCONNECTS SHALL CONSIST OF FUSES AND DISCONNECT SWITCHES NOT CIRCUIT BREAKERS. THE MAIN DISCONNECT SHALL DISCONNECT POWER INSIDE PANEL WHEN THE DOOR OPENS.
4. ALL RELAYS SHALL BE INDUSTRIAL CONTROL RELAYS. ALLEN-BRADLEY "700" SERIES OR EQUAL. PROVIDE WITH NUMBER OF AUX CONTACTS AS REQUIRED (MIN. OF 2).
5. ALL INDICATING LIGHTS SHALL BE 30MM NEMA 4X OIL TIGHT/WATER TIGHT/CorROSION RESISTANT PUSH-TO-TEST LED TYPE. PROVIDE ALLEN-BRADLEY "800" SERIES OR EQUAL.
6. ALL SELECTOR SWITCHES SHALL BE 30MM NEMA 4X OIL TIGHT/WATER TIGHT/CorROSION RESISTANT Type WITH GLOVED HAND KNOBS. PROVIDE ALLEN-BRADLEY "800" SERIES OR EQUAL.
7. THE NUMBER OF STARTS COUNTER SHALL BE A RED LION P/N CUB30000 OR EQUAL. THE RUN TIME COUNTER SHALL BE AN ETM P/N FWZ72 OR EQUAL.
PUMP CONTROL NOTES

FOR SHEET 220-8

1. SEE SHEET 220-10 FOR THE CONTROL LEGEND.

2. COORDINATE WITH LUI ALARM TO PROVIDE (4) SEPARATE ALARMS TO LUI THROUGH THE DIGITAL COMMUNICATOR:
   (1) LOSS OF POWER
   (2) LOW LEVEL
   (3) HIGH LEVEL
   (4) SPARE

3. COORDINATE WITH OBI WASTEWATER DEPARTMENT
   COLLECTIONS SECTION TO PROGRAM THE MULTI-RING
   CONTROLLER TO START AND STOP THE PUMPS, ALTERNATE
   THE PUMPS (LEAD VS. LAG), AND ESTABLISH
   THE HIGH AND LOW LEVEL ALARM SET POINTS.

4. PROGRAM SMC FLEX AUXILIARY CONTACT NO. 1 TO
   CLOSE WHEN STARTER IS "UP TO SPEED".
   PROGRAM SMC FLEX AUXILIARY CONTACT NO. 2 TO
   CLOSE WHEN STARTER IS "IN FAULT".
   PROGRAM SMC FLEX AUXILIARY CONTACT NO. 3 TO
   CLOSE WHEN STARTER IS "UP TO SPEED".
   PROGRAM SMC FLEX AUXILIARY CONTACT NO. 4 TO
   CLOSE WHEN STARTER IS "UP TO SPEED".

5. CONTROL TRANSFORMER. 480V/120V, 18, 2 KVA, W/
   FACTORY INSTALLED PRIMARY AND SECONDARY FUSE
   PROTECTION. SQUARE-D TF2000. SEE NOTE 9 BELOW.

6. CONTROL TRANSFORMER. 120V/24V, 18, 100 VA, W/
   FACTORY INSTALLED PRIMARY AND SECONDARY FUSE
   PROTECTION. SQUARE-D TP100. SEE NOTE 9 BELOW.

7. PROVIDE AN R-C SUPPRESSOR ACROSS ALL SMC FLEX
   STARTER OUTPUTS THAT POWER A COIL ALLEN BRADLEY
   199-MSMA1.

8. ALL RELAYS SHALL BE INDUSTRIAL CONTROL RELAYS.
   ALLEN BRADLEY BULLETIN "703" SERIES OR EQUAL.
   PROVIDE WITH NUMBER OF AUX CONTACTS AS REQUIRED
   (MIN. OF 2).

9. SECONDARY SURGE ARRESTOR WITH LED MEETS
   ANSI/JEDE 092.11-1993. SQUARE-D SR500175 OR
   EQUAL.

10. CONTROLS ARE SHOWN FOR A 480V LIFT STATION.
    MODIFY TRANSFORMERS, FUSES, ETC. IF DIFFERENT LINE
    VOLTAGE IS USED. USE CONTROL VOLTAGE AS SHOWN.

11. THE NUMBER OF STARTS COUNTER SHALL BE A RED
    LION P/N CUB10000 OR EQUAL. THE RUN TIME COUNTER
    SHALL BE AN ETM P/N FW272 OR EQUAL.

NOTES:

1. ALL DIMENSIONS ARE MINIMUM.

2. THE LOCATION OF ALL EXISTING PIPING, CONDUIT, ETC. MAY NOT BE WHERE
   SHOWN AND MAY NOT BE SHOWN. ALL LOCATIONS THAT ARE SHOWN ARE
   APPROXIMATE AND SHOULD BE FIELD VERIFIED. OBTAIN UTILITY LOCATES
   PRIOR TO DIGGING. DIG WITH CAUTION. AVOID WATER, SEWER, DRAINAGE
   PIPES AND OTHER CONFLICTS.

3. MAINTAIN 12 INCHES MINIMUM SEPARATION (ALL DIRECTIONS) BETWEEN POWER
   AND OTHER EXISTING CONDUITS, PIPES, ETC.

4. CUT & REPLACE EXISTING ASPHALT, CONCRETE, CONCRETE CURB, GUTTER,
   SIDEWALK, ETC AS NECESSARY.

5. ALL TRENCHES SHALL BE 18" WIDE MIN. COMPACT BACKFILL TO 95%. TOP
   6" OF MATERIAL SHALL BE 0-1.

TRENCH DETAIL

NRS

SCALE: NTS
DATE: 1/18/00
DRAWN BY: STAFF
CHECKED BY: JB/STAFF
APPROVED BY:

CITY AND BOROUGH OF JUNEAU, ALASKA
PUMP STATION
NOTES & TRENCH DETAIL

REVISED: 8/14/2011
STANDARD 220-9
**EQUIPMENT SCHEDULE**

1. PUMP CONTROL PANEL.
2. DISCONNECT: HEAVY DUTY, 3 POLE, SIZE PER APPLICATION.
3. TRANSIENT VOLTAGE SURGE SUPPRESSION DEVICE, PROTECTION MODES: L-N, L-L, N-G. USE EITHER SERIES OR EQUAL SIZE PER APPLICATION. PROVIDE LED Indicators AND ALARM CONTROLS.
4. CURRENT TRANSFORMER.
5. FUSE: HIGH SPEED CLASS J, SHAWMUT OR BUSS SERIES.
6. CAPACITOR CONTRACTOR, NEMA RATED, SIZE PER APPLICATION.
7. FUSE: DUAL ELEMENT/DUAL DELAY, CLASS RK1. SIZE PER APPLICATION.
8. POWER FACTOR CORRECTION CAPACITOR W/FUSES & FAILED CELL INDICATORS. SQUARE D CLASS 5810. SIZE PER APPLICATION. PROVIDE FOR PUMPS 7.5HP AND LARGER.
9. REDUCED VOLTAGE MOTOR STARTER WITH LINE TRANSIENT VOLTAGE PROTECTION MODULE, ISOLATION CONTACTS, AND PUMP CONTROL. PROVIDE/ADD TO HUMAN INTERFACE MODULE (HIM). ALLEN-BRADLEY SWIFT-FLEX SERIES. NO SUBSTITUTIONS. SIZE PER APPLICATION.
10. CONDUIT WITH CABLES (MOTOR FEEDERS). SIZE PER APPLICATION.
11. CONDUIT WITH CABLE (MULTITRODE). SIZE PER APPLICATION.
12. CROUSE HINDS EYES CONDUIT SEAL THE WETWELL IS A CLASS 1, DIV 1 AREA.
13. STAINLESS STEEL, NEMA 4X JUNCTION BOX. 12" X 12" X 6" MIN. SIZE AS REQUIRED. SPlice CABLES ON POWER DISTRIBUTION BLOCKS IN J-BOX. SQUARE D CLASS 9080 TYPE LB WITH CLEAR COVERS. LABEL COVERS FOR EACH PUMP AND MULTITRODE CABLE.
14. SPICE CASE STYLE SEAL OFF. CROUSE HINDS EYES SERIES.
15. SEWAGE LIFT PUMPS, SIZE PER APPLICATION.
16. COMBINATION METER/DISCONNECT. PROVIDE WITH TEST BYPASS SAFETY SOCKET AND MAIN CIRCUIT BREAKER. PROVIDE WITH A STAINLESS STEEL, NEMA 3R ENCLOSURE. SIZE PER APPLICATION.

**EQUIPMENT SCHEDULE - CONTINUED**

17. SAFETY SWITCH, 3 POLE, NEUTRAL BUS, DOUBLE THROW. PROVIDE IN A STAINLESS STEEL ENCLOSURE. SIZE PER APPLICATION.
18. PORTABLE GENERATOR CIRCUIT BREAKER: MOLDED CASE CIRCUIT BREAKER IN STAINLESS STEEL NEMA 3R ENCLOSURE. SIZE PER APPLICATION.
19. PORTABLE GENERATOR RECEPTACLE. CROUSE HINDS AREA5200126522. WITH BACK BOX, ANGLE ADAPTER, AND REVERSE SERVICE INSULATORS. SIZE PER APPLICATION.
20. PROVIDE A 480V, 3W+4W SERVICE TO THE LIFT STATION. OTHER VOLTAGES MAY BE ALLOWED ONLY WITH WRITTEN PERMISSION FROM THE CWS WASTEWATER DEPARTMENT COLLECTIONS SECTION.
21. SIZE ALL CONDUCTORS, CONDUIT, EQUIPMENT, ETC. PER APPLICATION. PERFORM ALL WORK PER THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES.

**CONTROL LEGEND**

- TRANSFORMER
- FUSE
- CONTRACTOR
- CAPACITOR
- CIRCUIT BREAKER
- PUSH TO TEST INDICATING LIGHT. LETTER INDICATES COLOR.
- INDUSTRIAL CONTROL RELAY. NUMBER OR LETTER INDICATES RELAY NUMBER.
- NORMALLY CLOSED CONTACT. NUMBER INDICATES RELAY NUMBER.
- TWO POSITION SWITCH
- ELECTRIC MOTOR

**NOTES:**

1. PROVIDE STAINLESS STEEL CABLE GRIPS FOR CABLES IN WETWELL. LOCATE ADJACENT TO NEAREST PUMP.
2. PROVIDE PHASE INVERTERS AS REQUIRED TO PROVIDE 480V, 3W POWER TO THE SEWAGE LIFT PUMPS. SEE NOTE 20, THIS SHEET.
Frame & Grate shall conform with Std. 208

Adjusting Rings
(See Note 1)

Reducing cone required unless approved by the engineer

Rungs (See Note 2)

Plaster interior and exterior of all joints with non-shrinking grout (grout shall be "Recrete" or approved equal). Seal lifting holes inside and out.

All joints between sections shall be sealed by "Ram-Nek", "Rub-R-Nek", or other approved gasket material

Barrel joint must be above high ground water table, or seal with an approved joint exterior waterproofing system.

All pipe shall extend min 1" and max 2" into manhole. Grout inside and outside of all pipes. (Grout shall be "Recrete" or approved equal).

Rungs (See Note 2)

Bed manhole with a minimum of 12" of sand, D-1 or washed rock. Existing NF5 granular material may be used if compacted to 95% of maximum density per ASTM 1557.

Notes:
1. The area between the top of the catch basin and the frame shall be filled with concrete meeting the requirements of CBJ specification 03302—Concrete Structures. No bricks, wood, stones, adjusting rings or other grade adjustment devices shall be used. Temporary form work shall be constructed to provide a smooth inside exposed surface free of voids and projections. The constructed frame support must match the interior of the frame installed as approved by the engineer.
2. Rungs to be placed 12" o.c. on unobstructed side of manhole. Last rung shall be 18" max from bottom of manhole, and top rung shall be 6" maximum from top of cone. If unobstructed side not available, last rung shall be placed 6" over smallest pipe. Refer to A.S.T.M. C-478 for design requirements and C-478-69 for minimum steel for barrel. Barrel shall be imbedded in base 50
3. That first barrel section is connected with base.
4. Blockouts must be formed.
5. For Type I manhole, primary lead shall not exceed 30° C.M.P. or 27° R.C.P. with included angle between leads no less than 135°.
6. For Type II manhole, primary lead shall not exceed 135° C.M.P. or 14° R.C.P. with included angle between leads no less than 135°.

City and Borough of Juneau, Alaska
Storm Drain Manhole
Types I & II

Scale: NTS
Date: 12/6/96

Drawn by: DRW
Checked by: STAFF

Approved by: [Signature]

Revised: 8/14/2011

Standard 303
FRAME & GRATE

CONCRETE SECTION

PIPE OUTSIDE DIAMETER
PLUS 2"

3 1/2" MIN

18" MIN

36" MIN

32" MIN

OIL-WATER-DEBRIS SEPARATOR REQUIRED (SEE NOTE 9)

BED WITH A MINIMUM OF 12"
NON-FROST SUSCEPTIBLE SAND
OR D-1. EXISTING NON-FROST
MATERIALS MAY BE USED IF COMPACTED
TO 95% OF MAXIMUM DENSITY
PER ASTM D-1557.

CATCH BASIN

NOTES
1. FOR USE WITH TWO INLET/OUTLET PIPES OF DIAMETER 12" OR SMALLER. FOR LARGER AND/OR MORE INLET/OUTLET PIPES OR IF CATCH BASIN IS DEEPER THAN 4' FROM FINISH GRADE TO SUMP, INSTALL A TYPE I OR TYPE II STORM DRAIN MANHOLE (SEE STANDARD 303).
2. ENTIRE KNOCKOUT IS TO BE REMOVED AND SEALER SHOT AROUND PIPE. ALL PIPES ARE TO EXTEND MIN 1" AND MAX 3" INTO CATCH BASIN.
3. GROUT INTERIOR AND EXTERIOR BETWEEN FRAME, SECTIONS, AND CATCH BASIN.
4. FRAME AND GRATE SHALL BE DUCTILE IRON. FRAME MAY BE CAST INTO THE TOP UNIT OR PLACED OVER THE OPENING AS APPROVED BY THE ENGINEER.
5. FRAME AND GRATE SHALL BE OF A TYPE THAT WILL NOT CREATE A HAZARD FOR BICYCLE TRAFFIC.
6. CATCH BASIN SHALL MEET HIGHWAY STANDARD-25 LOAD REQUIREMENTS.
7. MINIMUM STEEL SHALL BE SPECIFIED BY ASTM C-478-69.
8. MINIMUM SUMP DEPTH SHALL BE 16".
9. ADJUSTING RING SHALL BE THE SAME SIZE AS THE CATCH BASIN.

THE AREA BETWEEN THE TOP OF THE CATCH BASIN AND THE FRAME SHALL BE FORMED AND FILLED WITH CONCRETE MEETING THE REQUIREMENTS OF CBJ SPECIFICATION 03302 - CONCRETE STRUCTURES. NO BRICKS, WOOD OR OTHER MATERIALS PERMITTED FOR ADJUSTING GRADE.

ALL CATCH BASINS THAT EMPTY INTO AN OPEN DRAINAGE SHALL BE FITTED WITH AN OIL-WATER-DEBRIS SEPARATOR DEVICE AS DIRECTED BY THE ENGINEER.

CITY AND BOROUGH OF JUNEAU, ALASKA

TYPE III CATCH BASIN

SCALE: NTS
DATE: 12/6/96

DRAWN BY: DRW
CHECKED BY: STAFF
APPROVED BY: 

REVISED: 8/14/2011
STANDARD 304A
NOTES

1. FOR USE WITH TWO INLET/OUTLET PIPES OF DIAMETER 15" OR 18". FOR LARGER AND/OR MORE INLET/OUTLET PIPES OR IF CATCH BASIN IS GREATER THAN 5' DEEP FROM FINISH GRD TO SUMP, INSTALL A TYPE I OR II STORM DRAIN MANHOLE (SEE STANDARD 303).

2. ALL JOINTS BETWEEN SECTIONS AND BETWEEN FRAME AND CONCRETE SECTIONS SHALL BE GRouted INSIDE AND OUTSIDE.

3. ENTIRE KNOCKOUT IS TO BE REMOVED AND SEALED SHUT AROUND PIPE. ALLPIPES ARE TO EXTEND MIN. 1" AND MAX. 2" INTO CATCH BASIN.

4. FRAME AND GRATE SHALL BE DUCTILE IRON. FRAME MAY BE CAST INTO THE TOP UNIT OR PLACED OVER THE OPENING AS APPROVED BY THE ENGINEER. FRAME AND GRATE MUST BE OF A TYPE THAT WILL NOT CREATE A HAZARD FOR CYCLE TRAFFIC.

5. CATCH BASIN SHALL MEET HIGHWAY STANDARD-20 LOAD REQUIREMENTS.


7. MINIMUM SUMP DEPTH SHALL BE 16".

8. ADJUSTING RING SHALL BE THE SAME SIZE AS THE CATCH BASIN. THE AREA BETWEEN THE TOP OF THE CATCH BASIN AND THE FRAME SHALL BE FORMED AND FILLED WITH CONCRETE MEETING THE REQUIREMENTS OF CBJ SPECIFICATION 03302-CONCRETE STRUCTURES. NO BRICKS, WOOD OR OTHER MATERIALS ARE PERMITTED AND ANY FORM WORK SHALL BE REMOVED.

9. ALL CATCH BASINS THAT EMPTY INTO AN OPEN DRAINAGE SHALL BE FITTED WITH AN OIL-WATER-DEBRIS SEPARATOR DEVICE AS DIRECTED BY THE ENGINEER.

CITY AND BOROUGH OF JUNEAU, ALASKA

TYPE IV CATCH BASIN

STANDARD 304B
NOTES
1. ACCESS TO THE MANHOLE SHALL BE CONSTRUCTED TO ALLOW FOR MAINTENANCE AND PUMPING.
2. MANHOLE SHALL CONFORM IN ALL OTHER ASPECTS TO A TYPE I OR TYPE II STORM DRAIN MANHOLE AS SHOWN IN STANDARD 303.
3. INLET, OUTLET, AND RISER PIPE SHALL BE THE SAME DIMENSION.

CITY AND BOROUGH OF JUNEAU, ALASKA
OIL-WATER SEPARATOR
STORM DRAIN MANHOLE

SCALE: NTS DATE: 12/6/96
DRAWN BY: DRW CHECKED BY: STAFF
APPROVED BY: REVISED: 8/14/2011
STANDARD 305
NOTES
1. COVER SHALL HAVE THE WORDS "STORM DRAIN" CAST IN.
2. FRAME AND COVER DIMENSIONS SHALL BE IN ACCORDANCE WITH OLYMPIC CONSTRUCTION CASTINGS NO. 7580A OR AN APPROVED EQUAL.
3. FRAME AND COVER SHALL BE DUCTILE IRON.
4. FRAME AND COVER SHALL BE OF A TYPE THAT WILL NOT CREATE A HAZARD FOR BICYCLE TRAFFIC.
NOTES:
1. MARK SERVICE WITH GREEN PAINTED 2"x4" POST. POST SHALL EXTEND TO DEPTH OF SERVICE LATERAL. REBAR SHALL BE DRIVEN TO GROUND LEVEL. WRAP WARNING TAPE AROUND POST AND STAPLE TO TOP OF POST.
2. ACCEPTABLE PIPE FOR USE WITHIN R.O.W. INCLUDES C900 PVC, SDR 35 PVC, AND HD CPP.
3. MINIMUM CLEARANCE OF 18" REQUIRED BELOW DITCH LINE.
4. DISTANCE FROM THE TEE TO THE CATCH BASIN AND TWO MEASURED DISTANCES FROM END OF SERVICE PIPE TO PERMANENT OBJECTS SHALL BE NOTED ON THE AS BUILT PLANS.
5. THE SERVICE LATERAL SHALL END AT THE PROPERTY LINE WITH A BELL END OF PIPE.
6. LATERALS SHALL BE CONSTRUCTED AT 2% SLOPE UNLESS APPROVED BY THE ENGINEER.
7. PIPE CONNECTIONS IN THE RIGHT OF WAY THAT DO NOT USE BELL AND SPOUT SHALL CONFORM TO STANDARD 218.

CITY AND BOROUGH OF JUNEAU, ALASKA
STORM DRAIN
SERVICE LATERAL

STANDARD 307
NOTES
1. FRAME AND GRATE SHALL BE DUCTILE IRON AND SHALL BE IFCO 571 OR AN APPROVED EQUAL.
2. GRATE SHALL HAVE 1" DIAGONAL BARS WITH 1 1/2" OPENINGS.
3. FRAME AND GRATE SHALL BE OF A TYPE THAT WILL NOT CREATE A HAZARD FOR BICYCLE TRAFFIC.
4. INSTALL RIGHT OR LEFT GRATES FOR BICYCLE SAFETY AS DETERMINED BY THE ENGINEER.
5. USE TYPE B HOOD ONLY. A TYPE B HOOD REQUIRES A MINIMUM OF 6 FEET OF #4 REBAR CONTINUOUS, CENTERED ON THE HOOD.
6. FRAME SHALL BE SET ON SOLID RISER OR FORMED AND Poured IN PLACE USING CONCRETE MEETING THE REQUIREMENTS OF OBJ.
   SPECIFICATION 03302 - CONCRETE STRUCTURES. NO BRICK, WOOD, OR OTHER MATERIAL IS PERMITTED FOR ADJUSTING GRADE.
7. 1/4" GROUT MAXIMUM MAY BE USED TO BED FRAME.
NOTES:
1. INSTALL LEFT OR RIGHT GRATES FOR BICYCLE SAFETY AS DETERMINED BY THE ENGINEER.
2. INSTALL STORM DRAIN MANHOLE TYPE I OR II, OR CATCH BASIN TYPE III OR TYPE IV AS APPROVED BY THE ENGINEER. SEE STANDARDS 303, 304A, AND 304B.
3. FOR DETAILS ON CURB INLET FRAME & GRATE SEE STANDARD 308.
4. CURB & GUTTER SHALL CONFORM WITH STANDARD 111A.
NOTES:
1. FRAME AND GRATE TO BE DUCTILE IRON AND A TYPE THAT WILL NOT CREATE A HAZARD FOR A BICYCLE TRAFFIC.
2. COMPACT NON FROST SUSCEPTIBLE (NFS) BACKFILL TO 95% OF MAXIMUM DENSITY.
3. SLOPE MAY VARY TO MATCH SWALE FLOWLINE. FINAL GRADE AS DIRECTED BY THE ENGINEER.
NOTES:
1. INSTALL FENCE AT THE APPROPRIATE LOCATION BY CONSIDERING TERRAIN, SLOPE, WATER FLOW AND DISTURBANCE AREA. PLACE THE FENCE AWAY FROM THE TOE OF SLOPE LEAVING ROOM TO ACCUMULATE SEDIMENT AND PERFORM WORK.
2. SILT FENCE FABRIC SHALL BE UV RESISTANT POLYPROPYLENE WITH OPENINGS LESS THAN A NO. 30 SIEVE, OR APPROVED BY THE ENGINEER.
3. SILT FENCE FABRIC SHALL BE CUT FROM A CONTINUOUS ROLL WITH JOINTS KEPT TO A MINIMUM. JOINTS SHALL BE SECURED AT SUPPORT POSTS WITH A MINIMUM OF 6" OF OVERLAP. LESS POSTS MAY BE INSTALLED WHEN WIRE MESH IS USED TO SUPPORT THE SILT FENCE FABRIC AS APPROVED BY THE ENGINEER.
4. AN 8" WIDE BY 12" DEEP TRENCH SHALL BE CONSTRUCTED ALONG THE ENTIRE LENGTH OF THE UPHILL SIDE OF THE SILT FENCE. THE TRENCH SHALL BE BACKFILLED WITH WASHED ROCK OR COMPACTED NATIVE MATERIAL.
5. THE SILT FENCE SHALL BE MAINTAINED UNTIL THE ENTIRE DISTURBANCE AREA HAS BEEN STABILIZED. THE SILT FENCE MAY BE REMOVED ONLY AFTER THE RETAINED MATERIALS HAVE BEEN PROPERLY DISPOSED OF.
ELEVATION

SECTION A-A

ROCK SIZE TABLE

AMOUNT       ROCK SIZE
100% < 12"   *
100% > 2"     *
UPSTREAM FACE OF STORMWATER MANAGEMENT ROCK CHECK DAM TO BE CLEAN 1-1/2" MINUS GRAVEL

ROCK CHECK DAM SPACING TABLE

DITCH GRADE SPACING
1 %     200 FT
2 %     150 FT
4 %     50 FT
6 %     35 FT
8 %     25 FT
DITCH SLOPES GREATER THAN 8% SPACING MUST BE APPROVED BY THE ENGINEER

NOTES:
1. ROCK CHECK DAMS ARE NOT ALLOWED IN ANDRONOMUS FISH STREAMS WITHOUT PERMISSION OF THE APPLICABLE STATE & FEDERAL AGENCIES AND THE CHICAGO DEPARTMENT OF ENGINEERING.
2. ROCK CHECK DAMS DESIGNATED AS STORMWATER MANAGEMENT ITEMS ARE TO REMAIN IN PLACE. TEMPORARY ROCK CHECK DAMS INSTALLED FOR SEDIMENT CONTROL DURING CONSTRUCTION MUST REMAIN IN PLACE UNTIL SOILS ARE STABILIZED AND REVEGATION IS COMPLETE AS APPROVED BY THE ENGINEER.
3. STORMWATER MANAGEMENT ROCK CHECK DAMS SHALL BE CONSTRUCTED WITH CLEAN, WELL-GRADING MATERIAL (NO FINES), PER ROCK SIZE TABLE AND FACES ON THE UPSTREAM SIDE WITH CLEAN 1-1/2" MINUS GRAVEL. TEMPORARY ROCK CHECK DAMS MAY OMIT THE 1-1/2 GRAVEL FACE.
4. THE HEIGHT OF THE ROCK CHECK DAM SPILLWAY SHALL BE NO GREATER THAN 3'. THE TOP OF DAM SHALL BE NO MORE THAN 3'-6". THE HEIGHT OF THE SPILLWAY SHALL BE PROPORTIONATE TO THE HEIGHT OF THE DAM BUT NO LESS THAN 2'.
5. ALL ROCK CHECK DAMS SHALL BE SPACED PER TABLE ABOVE AT A MINIMUM OR AS DIRECTED BY THE ENGINEER.

SCALE: NTS DATE: 1/25/96 CITY AND BOROUGH OF JUNEAU, ALASKA
DRAWN BY: RDK CHECKED BY: STAFF
APPROVED BY: REVISED: 8/14/2011 STANDARD 312
NOTES

1. Guard Posts are required on all hydrants except those in sidewalks, along state highways or as directed by the engineer.
2. Guard Posts shall be 4" diameter, schedule 40 steel pipe with a minimum 4 feet of burial and 2-1/2 feet of exposure.
3. Posts shall be filled flush with concrete and painted with 4C-184 Caterpillar yellow enamel after installation.
4. Posts shall not block operation of valve.

CITY AND BOROUGH OF JUNEAU, ALASKA

HYDRANT GUARD POSTS

SCALE: NTS DATE: 11/20/96
DRAWN BY: DRW CHECKED BY: STAFF
APPROVED BY: 

REVISED: 8/14/2011 STANDARD 404
NOTES:
1. AT PROPERTY LINE CONNECT TO EXISTING LINE OR MARK WITH BLUE 2'X4' TIMBER ORSCRIBE "W" ON CONCRETE CURB.
2. VALVE SHALL BE IRON BODY, NON-RISING BRONZE STEM, RESILIENT WEDGE TYPE. VALVE SHALL BE MUELLER, CLOW, KENNEDY, OR MAH AND SHALL MEET ALL REQUIREMENTS OF AWWA C509.
3. VALVE BOX SHALL BE CONSTRUCTED IN ACCORDANCE TO MAINLINE VALVE STANDARD 407.
4. ALL SERVICES MUST HAVE A MINIMUM OF 5' OF COVER BELOW GRADE OR UNDER EXISTING CULVERTS. ADDITIONAL DEPTH MAY BE REQUIRED BY THE ENGINEER.
5. MAINTAIN A MINIMUM OF 18" OF SEPARATION BETWEEN VALVE BOXES, ALSO BETWEEN VALVE BOXES AND OTHER STRUCTURES.
6. VALVE BOXES IN PAVED AREAS SHALL BE SET 3/8" TO 1/2" BELOW FINISHED PAVEMENT.
7. DUCTILE IRON SERVICES 6" OR LESS SHALL HAVE A THAW WIRE BOLTED TO A SADDLE OR CAD WELDED TO THE MAIN/TEE THAT RUNS ALONG THE PIPE AND WOUND AROUND THEN INTO A DRILLED 3/4" HOLE ON THE SAME SIDE OF THE VALVE BOX AS THE MAIN. A SECOND THAW WIRE SHALL BE CAD WELDED TO THE VALVE BOX AND WOUND AROUND THEN INTO THE VALVE BOX ON THE SAME SIDE AS THE PRIVATE PROPERTY. CONTINUITY STRAPS SHALL BE CAD WELDED ACROSS THE VALVE.
8. THE THAW WIRE SHALL BE TESTED FOR ELECTRICAL CONTINUITY AND CONSTRUCTED IN ACCORDANCE WITH CBJ STANDARD 406A.
9. A MANUFACTURED TEE IS REQUIRED FOR SERVICE INSTALLATION ON ALL MAIN LINES LESS THAN 10" IN DIAMETER.
10. ALL JOINTS TO BE MECHANICAL (MEADALOG TYPICAL).
11. CBJ PUBLIC WORKS WATER UTILITY MUST BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE BEFORE TAPPING MAIN.
12. ALL VALVE BOXES SHALL BE RECORD WITH SWING-TIES AND SUBMITTED TO THE ENGINEER.
13. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST ADDITION OF CBJ STANDARDS AND SPECIFICATIONS.
14. WRAP BOTTOM OF VALVE BOX WITH FABRIC OR PLASTIC TO PREVENT MATERIAL FROM INFILTRATING THE VALVE BOX.
NOTES:
1. VERTICAL SECTION OF THE D.I.P STAND PIPE SHALL BE PLUMB.
2. GROUND COVER SHALL BE 5' MINIMUM BURIAL.
3. FIRE LINE CONSTRUCTED OF DUCTILE IRON SHALL BE:
   a. RESTRAINED WITH EBBA IRON "MEGALUG SYSTEM," OR APPROVED EQUAL AT ALL MECHANICAL FITTINGS.
   b. CONNECTED WITH FIELD LOCKING GASKETS AT ALL PUSH-ON JOINTS.
   c. FLUSHED, DISINFECTED, TESTED, (ALL PRIVATE FIRE LINES SHALL BE TESTED HYDROSTATICALLY AT NOT LESS
      THAN 200psi PRESSURE FOR TWO HOURS).
4. THAW WIRE AND CONTINUITY STRAPS (ZEA) SHALL BE #2 COPPER WITH TYPE TW THW INSULATION. THAW WIRE SHALL BE
   BOLTED OR CAD WELDED TO THE TEE AT THE MAIN. ALL WELDED OR BOLTED WIRE SHALL BE ASPHALTIC COATED.
5. CONTINUITY FOR 6" PIPE AND UNDER SHALL BE (2) JUMPER STRAPS ACROSS ALL VALVES, MECHANICAL FITTINGS
   AND PUSH-ON JOINTS.
6. TIE RODS WITH ANCHORS SHALL BE THREADED BLACK IRON OR MILD STEEL WITH A 12-MIL MINIMUM ASPHALTIC
   COATING.
7. SLEEVES SHALL BE PROVIDED TO PROTECT ALL PIPE PENETRATIONS THROUGH CONCRETE AND MASONRY WALLS AND
   CONCRETE FLOORS, UNLESS OPENINGS ARE DRILLED OR BORED.
NOTES:
1. A VALVE IS REQUIRED FOR EVERY 500' OF STRAIGHT MAINLINE OR AS DIRECTED BY THE ENGINEER.
2. A MINIMUM OF 2 VALVES ARE REQUIRED AT ALL TEES IN A MAINLINE. A MINIMUM OF 3 VALVES ARE REQUIRED AT ALL 4-WAY CROSSES IN A MAINLINE. TEES AND CROSSES THAT FEED SERVICES AND FIRE HYDRANTS ARE PLACED AS DIRECTED BY THE ENGINEER.
3. MAINLINE VALVES REQUIRE THRUST BLOCKS AT THE DIRECTION OF THE ENGINEER.
4. IF WATER MAIN IS MORE THAN 6' DEEP, USE 4" IRON SOIL PIPE WITH TOP SECTION EJW 8555 SLIDE (26T OR 16T) VALVE BOX.
5. THIS DETAIL APPLIES TO ALL MAINLINE VALVES AND ALL WATER VALVES 4" IN DIAMETER OR GREATER.
6. VALVE BOXES ARE TO BE RAISED DURING PAVING OPERATIONS A MINIMUM OF 3/8", MAXIMUM OF 5/8" BELOW FINISHED PAVEMENT. VALVE BOXES THAT DO NOT MEET GRADE SPECIFICATIONS SHALL BE SAWCUT, RAISED TO GRADE WITH 4" AC PAVEMENT (NO CONCRETE).
7. VALVE BOXES WITHIN GRAVEL ROADWAYS ARE TO BE SET 6" TO 8" BELOW FINISHED GRADE.
8. NO MORE THAN 1 VALVE BOX PAYING RISER IS ALLOWED PER VALVE.
9. VALVE BOX COVER SHALL BE 5-1/4" DROP LID TYPE WITH 1" RAISED LETTERING (RECESSED FLUSH) AND 2 CLOSED PICKHOLES.

CITY AND BOROUGH OF JUNEAU, ALASKA
MAINLINE VALVE

STANDARD 407
NOTES
1. MANHOLE, COVER & FRAME CONSTRUCTION SHALL COMPLY WITH STANDARD 206A.
2. COPPER TUBING SHALL MAINTAIN A POSITIVE GRADE FROM THE WATERMAIN TO THE AIR RELEASE VALVE. CONNECTIONS IN COPPER TUBING SHALL BE FLARED UNIONS.
3. A 60" MINIMUM COVER SHALL BE MAINTAINED OVER THE COPPER TUBING AND WATERMAIN AT ALL LOCATIONS.
4. PROVIDE A PROTECTIVE SLEEVE FOR PENETRATIONS THROUGH CONCRETE BOTTOM AND SEAL AROUND TUBING TO PREVENT GROUND WATER INFILTRATION.
5. PVC DRAIN, AIR RELEASE VALVE, AND INSULATED COVER SHALL COMPLY WITH STANDARD 409.
NOTES
1. INSTALL INSULATION AS SHOWN WHEN "D" IS LESS THAN 5'-0" FOR WATER PIPE OR 3'-0" FOR SEWER PIPE.
2. INSULATION SHALL CONFORM TO SECTION 02607 OF THE STANDARD SPECIFICATIONS.
3. PIPE INSULATION SHALL BE 8'-0" IN LENGTH, CENTERED OVER EXISTING WATER OR SEWER PIPE.
4. PIPE INSULATION WITH R-FACTOR EQUAL TO RIGID BOARD MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.
5. CROSSING SHALL BE PROTECTED WITH A MINIMUM 8" OF INSULATION BOARDS WITH A 12" OVER LAP AS SHOWN.
Casing spacer required within 1" either side of joint or as specified by manufacturer. Where no joint is present, maximum distance between spacers is 12" or as specified by manufacturer.

All joints must be restrained with locking gasket.

Plan View

Casing pipe

Sewer or water pipe

Casing spacer

SECTION A-A

Notes:
1. Casing spacers shall be "Advance Product and Systems" high-density polyethylene or approved equal.
2. Ends of casing pipe shall be permanently sealed against the entry of foreign material.

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<tr>
<th>Casing Pipe Diameter</th>
<th>Min. Wall Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot;</td>
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<tr>
<td>6&quot; - 24&quot;</td>
<td>0.250&quot;</td>
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<td>26&quot; - 30&quot;</td>
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City and Borough of Juneau, Alaska

Bored Encasement

Revised: 8/14/2011

Standard 413
### Table 1: Total Concrete Required (Cu. Yards)

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>11.25°</th>
<th>22.5°</th>
<th>45°</th>
<th>90°</th>
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### Table 2: Minimum Restrained Distance “D” Required for Elimination of Thrust Blocks (Ft)

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>11.25°</th>
<th>22.5°</th>
<th>45°</th>
<th>90°</th>
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<td>40</td>
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<td>168</td>
<td>405</td>
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### Notes:
1. All downward concave bends must either be connected to a concrete thrust block at least as large as indicated in Table 1, be connected to restrained pipe for the minimum distance given in Table 2, or a combination of the two. Example of combination: 45 degree bend in 16" pipe 16" from another concave downward bend and 4 sticks (16" each) from nearest unrestrained joint. If not restrained, the volume of the required thrust block would be 6.9 cu. yds. As given by Table 1. However, since there is a restrained length “D” = (1/2 x 16") + (4 x 16") = 80 the size of the block can be reduced. This reduction is given by the last column of Table 2 to be 8 x 0.59 cu. yds. = 4.7 cu. yds. so that the block needs to be only 8.9 = 4.7 = 2.2 cu. yds.
2. Thrust blocks shall be poured so that joints of fittings, including all nuts and followers, remain accessible.
3. Center of mass of thrust block must be below pipe and connected to pipe with two steel straps. Each strap is to have a cross-sectional area of at least 1/2 square inch per 4 cubic yards of concrete. If straps are not stainless, pipe and straps shall be isolated from direct contact with a plastic insulator.
4. Regardless of size of thrust block, water pipe joints at angle must be restrained.
5. Concrete thrust blocks shall be 2500 psi and are based on 150 psi water pressure. All other conditions are subject to the engineer’s review and approval.
6. Deduction D is allowed only when conditions listed in Note 5 are met, entire section D is buried at least 5’ deep, and pipe is bedded in clean sand for entire length of D.
7. This standard applies to downward concave elbows. Upward concave elbows shall have thrust blocks as shown on Standard 414B.
8. Field-lock gaskets, mega-lug couplings, and Ford uniplunge couplings are the only approved means of restraining joints.
9. Restrained lengths used in place of thrust blocks in Standards 414A and 414B may not overlap.
### Table: Thrust Block Dimensions

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Min. Concrete Vol (yd³)</th>
<th>Min. Bearing Area (ft²)</th>
<th>Min. Concrete Vol (yd³)</th>
<th>Min. Bearing Area (ft²)</th>
<th>Alternative Restrained Length in All Directions (Feet) - See Note 5</th>
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### Notes:
1. Center of Mass of Thrust Block Must Lay Opposite To And Aligned Against the Direction of Thrust.
2. Thrust Blocks Shall Be Poured So That Joints of Fittings, Including All Nuts and Followers Remain Accessible.
3. Concrete Thrust Blocks Shall Be Poured Against Undisturbed Earth. Unstable Or Unsuitable Materials Shall Be Removed, Replaced and/or Compacted As Determined by the Engineer.
4. Volume and Bearing Surface of 2500 P.S.I. Concrete Thrust Blocks Are Based on 150 P.S.I. Water Pressure and Soil Bearing Capacity of 2000 P.S.F. All Other Pressure and/or Soil Conditions Are Subject to the Engineer's Review and Approval.
5. Thrust Blocks May Be Omitted If All Joints Within Minimum Distance Given by Above Table Are Restrained and Pipe Is Bedded in Sand. The Distances Appearing in the Table Assume That the Pipe Is Buried at Least 6' Deep and That Soil Conditions Are as Listed in Note 4. The Information in the Table Is Based on CPIR/A's "Thrust Restraint for Ductile Iron Pipe" Which Should Be Consulted If These Assumptions Are Not Met. Subject to the Conditions Listed in Note 4, a Combination of a Smaller Thrust Block and a Reduced Length of Restrained Pipe Is Allowed Per the Following Formula:

   \[
   \text{Actual Bearing Area of Block} + \frac{\text{Actual Restrained Length of Pipe}}{\text{Bearing Area Required by Table}} \geq 1.1
   \]

6. Thrust Blocks Are Required for All Bends, Tees, Plugs, and Caps in Pipe 4" and Larger Except as Listed in Note 5.
7. Regardless of Size of Thrust Blocks All Joints at Caps, Plugs, Bends, and Tees Must Be Restrained.
NOTES:
1. BONDING JUMPER MUST MATCH ELECTRICAL COLD WATER GROUND WIRE. (EXAMPLE: NO. 4 WIRE FOR UP TO 200 AMP SERVICE.) BONDING JUMPER CLAMP MUST BE COMPATIBLE WITH COPPER PIPE.
2. ALL JOINTS OR VALVES ON SERVICE SIDE OF METER YOKE MUST BE MECHANICAL FITTINGS.
3. ALL COMMERCIAL FACILITIES AND RESIDENTIAL BUILDINGS WITH TWO OR MORE UNITS MUST INSTALL A WATER METER (OBTAINABLE FROM CBW WATER UTILITY). SEE STANDARD 420.
4. ALL UNDERGROUND COPPER TUBE CONNECTIONS (OF ANY) SHALL BE EITHER MUELLER OR FORD FLARED UNIONS, FORD GRIP JOINT COMPRESSION FITTINGS OR APPROVED EQUAL. NIBCO BRAND IS NOT AN APPROVED EQUAL.
5. AFTER INSTALLATION, CONTINUE TO MAINTAIN A MINIMUM OF 22" UNOBSTRUCTED CLEARANCE FOR THE METER YOKE.
6. BURIAL DEPTHS GREATER THAN 5' MAY BE REQUIRED BY THE ENGINEER.
7. CURB BOX MUST BE SET SO THAT IT IS PLUMB, AND THAW WIRE SHALL BE WOUND AROUND OUTSIDE OF CURB BOX.
8. UNDERGROUND SERVICE LINE SHALL NOT BE WITHIN 1' OF ANY OTHER SERVICE LINE.
9. WRAP BOTTOM OF CURB BOX WITH FABRIC OR PLASTIC PRIOR TO BACKFILLING TO KEEP MATERIAL FROM INFILTRATING THE BOX.
NOTES:
1. ALL COMMERCIAL FACILITIES AND RESIDENTIAL BUILDINGS WITH TWO OR MORE UNITS MUST INSTALL A WATER METER.
2. INSTALL WITH BASE OF METER PARALLEL TO FLOOR.
3. INSTALL THREE 22 GAUGE MULTICOLORED CONDUCTORS IN 1/2" ELECTRICAL CONDUIT FROM MAIN ENTRANCE OF BUILDING TO
   WITHIN 12" OF METER REGISTER (NOT TO EXCEED 100'), ALLOW AN EXTRA 2 FEET OF WIRE FOR METER CONNECTIONS.
4. PROVIDE MINIMUM 18" CLEARANCE ABOVE METER, AND MINIMUM 12" CLEARANCE EACH SIDE AND BELOW METER.
5. FOR 1.5" OR 2" METERS, COUPLINGS SHALL BE FORD LOK-PAK METER COUPLING CF34 (COPPER), CF35 (IRON), CF37 (PVC),
   OR AN APPROVED EQUAL WITH IDLER BAR.
6. WATER METERING SHALL BE COORDINATED WITH AND APPROVED BY THE CBJ WATER UTILITY.
7. BONDING JUMPER MUST MATCH ELECTRICAL COLD WATER GROUND WIRE CLAMPS SHALL BE COMPATIBLE WITH COPPER PIPE.
8. NO SERVICE TAPS ALLOWED PRIOR TO METER INSTALLATION.
9. INSTALL IDLER BAR BETWEEN FLANGES AND VERIFY METER DIMENSION WITH CBJ WATER UTILITY PRIOR TO INSTALLATION.