SECTION S604 - CATCH BASIN AND SEWER MANHOLE

S604-1 DESCRIPTION

Work consists of construction, modification or repair of catch basin/field inlet structures; and adjustment or replacement of sewer manhole frame and cover as required in Contract Documents and as directed by Project Manager.

For purposes of this specification, all references are in accordance with *NYSDOT Standard Specifications (US Customary Units dated May 1, 2008)* edition, including any addenda.

S604-2 MATERIALS

S604-2.01 General

Bar reinforcement is to be in accordance with NYSDOT Section 709-01 Bar Reinforcement, Grade 60.

Brick is to be first quality, sound, hard-burned common sewer brick, culled of all irregular, unsound or damaged brick, in accordance with ASTM Designation C32 grade SS.

Dampproofing material for exterior portion of catch basin, field inlet and sewer manhole structures is to be two coats of Hi-Build Bituminous Coating 35-J-10 as manufactured by Mobil Corporation, or Koppers Bitumastic Super Service Black as manufactured by Koppers Company, Inc, or approved equivalent.

Dampproofing material for interior portion of catch basin/field inlet structures is to be two coats of Tamms Duralkote 240 as manufactured by Dural International Corporation, or approved equivalent.

Dampproofing material for interior portion of sewer manhole adjustment courses is to be one coat of Tamms Duralkote 500 as manufactured by Dural International Corporation, or approved equivalent.

Grout is to be non-shrink type grout with minimum compressive strength of 4000 psi at 24 hours in accordance with NYSDOT Section 701-05 Concrete Grouting Material.

Joint compound is to be Mainstay Joint Compound, Sikaflex-1A, Sonolastic NPII as manufactured by Sonneborn, or approved equivalent.

Portland cement mortar is to be in accordance with ASTM Designation C270, Type M, mortar for unit masonry.

Portland cement mortar for plugging abandoned lateral pipe is to be regular cement mortar, type II cement.

Material for backfilling around catch basin, field inlet and sewer manhole structures is to be select granular backfill (sewer) in accordance with Section S203 Excavation and Embankment.

Material for leveling course under catch basin/field inlet structures is to be stone bedding in accordance with Section S203 Excavation and Embankment.

S604-2.02 Catch Basin/Field Inlet - General

Concrete to be used for construction, modification or repair of catch basin/field inlet structures is to be class A concrete in accordance with NYSDOT Section 555 Structural Concrete.

Precast concrete section of catch basin/field inlet structures is to be constructed in accordance with NYSDOT Section 706-04 Precast Concrete Drainage Units.

Catch basin/field inlet unit is to be supplied complete with frame and grate.

S604-2.03 Type A and Type B Catch Basin

Type A and Type B catch basin frame and grate are to be fabricated steel in accordance with Section R655 Frame and Grate.

S604-2.04 Type A and Type B Catch Basin (Furnished)

Monroe County Pure Waters (MCPW) will furnish precast section of catch basin structure, and frame and grate. Furnished materials are to be picked-up from MCPW Stockroom, 444 East Henrietta Road, Rochester, New York, Monday through Friday, between hours of 8:00AM and 3:00PM, (585) 753-7574. MCPW Stockroom requires minimum of 2 working days advance notice to make arrangements for pick-up of furnished materials.

S604-2.05 Type C Catch Basin

Type C catch basin is to be cast-in-place concrete structure, with frame and grate, trap and underdrain check valve.

Catch basin frame and grate is to be per Syracuse pattern NYSDOT No.9 as manufactured by Syracuse Castings, or approved equivalent.

Catch basin trap is to be cast iron hooded type per Neenah R-3701-8 as manufactured by Neenah Foundry Company, or tee wye with threaded clean-out plug on top side.

Underdrain check valve is to be capable of preventing water from backing up into underdrain pipe.

S604-2.06 Type D Catch Basin

Type D catch basin is to be Type B catch basin structure, frame and grate; with additional access frame and cover.

Access frame is to be welded steel, and access cover 1/4 inch diamond plate, rib reinforced hot rolled steel, hot dipped galvanized, in accordance with ASTM A36, ASTM A48-83 Class 30B, and ASTM 123.

S604-2.07 Field Inlet

Field inlet is to be cast-in-place Type A catch basin structure, with concave shaped frame and grate.

Frame and grate is to be heavy duty cast iron type per Neenah R-3205 as manufactured by Neenah Foundry Company, or approved equivalent.

S604-2.08 Sewer Manhole Frame and Cover

A. General

Concrete for adjustment or replacement of sewer manhole frame and cover is to be class K concrete in accordance with Section S504 Portland Cement Concrete.

B. Sewer Manhole Frame and Cover

Castings are to be gray iron in accordance with ASTM A48-83 and AASHTO M105-82, with minimum tensile strength of 30,000 psi, (Class 30B). Castings are to be rated heavy-duty designed for AASHTO HS-20-44 highway loading plus 30 percent impact. As-cast dimensional tolerances are not to exceed ± 1/16 inch per foot.

Standard manhole covers are to be heavy-duty 1-3/8 inch thick, 24 inch diameter, with 22-1/2 inch clear opening, per Syracuse pattern 1032.

Watertight outer manhole covers are to be heavy-duty 1-1/2 inch thick, 30 inch diameter, with 24 inch clear opening on inner cover, 1/4 inch thick gasket, and inner cover bolt and lock bar, per Syracuse pattern 6544.

C. Sewer Manhole Frame and Cover (Furnished)

Monroe County Pure Waters (MCPW) will furnish replacement sewer manhole and cover. Furnished materials are to be picked-up from MCPW Fleet Center, 145 Paul Road, Chili, New York, Monday through Friday, between hours of 8:00AM and 3:00PM, (585) 753-7626. MCPW Fleet Center requires minimum of 2 working days advance notice to make arrangements for pick-up of furnished materials.

S604-3 CONSTRUCTION DETAILS

S604-3.01 General

Manufacturer's shop drawings are to be submitted to City for approval as required in General Conditions Article 6, Section 6.13 Shop Drawings and Samples.

Construct all new sewer main and lateral pipes, catch basins/field inlets, sewer manholes, and any other related appurtenances in accordance with requirements of Rochester Pure Waters District (RPWD).

If requested, RPWD personnel will locate and mark existing sewer laterals. RPWD personnel can only mark location of existing wye branches at sewer main, and cannot verify where existing lateral pipe extends from there. Request lateral stakeout by contacting MCPW Maps and Records, (585) 753-7367 or (585) 753-7651.

Existing sewer manhole frames and covers, and catch basin/field inlet frames, grates, access covers and capstones are property of RPWD. All such appurtenances that are removed are to be cleaned of all extraneous material and returned to MCPW Fleet Center, 145 Paul Road, Rochester, New York, Monday through Friday, between hours of 8:00AM and 3:00PM, inquire at main gate.

Appropriate measures are to be taken to prevent any damage to, or dirt, debris, construction materials, and any other extraneous materials from entering existing sewer system including but not limited to sewer main, lateral and underdrain pipes, catch basins/field inlets, sewer manholes, junction chambers, and any other related appurtenances during construction of Project. Any such invasive materials are to be removed immediately and contaminated appurtenance thoroughly cleaned.

RPWD must be notified immediately in event of any damage to existing sewer pipes and appurtenances, by calling (585) 753-7351, or (585) 753-7676. All repairs are to be performed in presence of representative of RPWD and are to be made in accordance with requirements of RPWD.

Excavation is to be performed in accordance with requirements of Section R206 Trench and Culvert Excavation.

Stone bedding leveling course and select granular backfill (sewer) materials are to be placed in accordance with requirements of Section S203 Excavation and Embankment. No structure is to be backfilled until mortar has completely set.

Sewer manhole frame and cover, catch basin/field inlet frame and grate, and catch basin access frame and cover are to be placed true to line and grade. Suitable measures are to be taken to ensure that cover/grate has continuous, full and uniform bearing contact with corresponding frame. Cover/grate is to be non-rocking when in place and under influence of traffic or other loads. Suitable methods to achieve non-rocking fit between cover/grate and corresponding frame will include, but not be limited to, following:

- ground mating surfaces
- machined and milled mating surfaces (horizontal and vertical)
- match marked elements
- locking elements

If match marked elements are utilized, care is to be taken to retain identity of elements in order to correctly match them and assure proper fit.

Field repairs may include grinding or proper welding techniques for material involved. Repairs that involve welding will be allowed only on steel castings and only with prior approval of Project Manager. Repairs are to result in complete unit whose individual parts have continuous, full and uniform bearing contact with each other, and that cover/grate does not rock or move under influence of traffic or other loads.

Catch basin/field inlet grate and catch basin access cover are to be bolted down to respective frame making sure that all bolts are completely tightened and unable to be loosened by hand.

Upon completion of work, sewer manhole and catch basin/field inlet structures are to be thoroughly dampproofed, cleaned of all extraneous material and kept clean until final acceptance of work.

S604-3.02 Catch Basin/Field Inlet

Prior to ordering precast portion of new catch basin/field inlet structure, verify proposed invert elevation, and size and direction of all lateral and underdrain pipes.

Where existing lateral pipe is to be reconnected to new catch basin/field inlet, existing lateral pipe is to be thoroughly cleaned of all extraneous material before making connection.

Lateral and underdrain pipe connections to catch basin/field inlet structure are to be made flush with inside face of structure and are to project outside of structure sufficient distance to allow for proper connection with adjoining lateral and underdrain pipe sections. Lateral and underdrain pipes are to fit neatly and tightly within structure wall, and connections are to be thoroughly sealed with epoxy grout and mortar.

Apply two coats of appropriate dampproof material to all exterior and interior surfaces of catch basin/field inlet structure, making sure that all surfaces are thoroughly covered.

S604-3.03 Adjust Existing Catch Basin/Field Inlet Frame and Grate, Access Frame and Cover

Existing catch basin/field inlet frame and grate, and if required access frame and cover, is to be removed and cleaned of all extraneous material. Any portion of existing structure walls that are damaged are to be repaired consistent with original construction.

Scarify or otherwise remove as necessary top portion of existing catch basin/field inlet structure walls to sufficient depth to accommodate new minimum 12 inch concrete cap. Prior to forming and pouring new concrete cap, top surface of existing structure walls are to be coated with epoxy polysulfide grout meeting requirements of NYSDOT Material designation 721-03 Epoxy Polysulfide Grout. Number 5 rebar is to be installed to tie-in new concrete cap with existing structure walls, extending minimum of 6 inches into both new concrete cap and existing structure walls. Drill holes into existing structure walls to install rebar, grout in rebar to form tight fit. Install existing or new frame and grate.

Apply two coats of appropriate dampproof material to all new exterior and interior concrete surfaces of catch basin/field inlet structure, making sure that all surfaces are thoroughly covered.

S604-3.04 Modify Existing Capstone Catch Basin

Existing capstone catch basin structure walls are generally constructed of brick and mortar, with portion of structure being located under and behind curb line. Portion of existing structure located behind curb is generally topped off with medina capstone.

Existing capstone catch basin frame and grate are to be removed and cleaned of all extraneous material. Existing structure walls that are damaged are to be repaired consistent with original construction.

All existing solid and structurally sound capstones are to be carefully removed, cleaned of all extraneous material and returned to MCPW. Existing capstone is to be cleaned in such manner as to be non-deleterious to existing capstone. Any existing capstone that is broken during excavation or salvage operations, or found to be unacceptable by Project Manager is to be disposed of.

To permanently eliminate existing capstone, existing capstone catch basin structure walls are to be dismantled by hand to depth sufficient to accommodate new reinforced Class A concrete lintel, and installation of full length piece of curb. New concrete lintel is to be constructed across portion of existing structure that is located behind and under curb line, is to be formed, and reinforced with number 4 rebar.

If necessary, use brick and mortar or concrete to adjust top of existing capstone catch basin structure walls to grade before installing existing or new frame and grate.

Apply two coats of appropriate dampproof material to all new exterior and interior concrete surfaces of capstone catch basin structure, making sure that all surfaces are thoroughly covered.

S604-3.05 Relocate Existing Catch Basin/Field Inlet

Existing catch basin/field inlet frame and grate, and if required access frame and cover, is to be removed and cleaned of all extraneous material. Any portion of existing structure walls that are damaged are to be repaired consistent with original construction.

Carefully excavate around existing catch basin/field inlet structure in such manner as not to damage existing structure and until existing structure is completely exposed. Disconnect existing lateral and underdrain pipes. Carefully pick up, move and reinstall existing structure in its new location in such manner as not to damage existing structure.

If necessary, use brick and mortar or concrete to adjust top of existing catch basin/field inlet structure walls to grade before installing existing or new frame and grate.

If existing lateral pipe is to be abandoned, open end of existing lateral pipe is to be plugged per Subsection S604-3.09 Abandon and Remove Existing Catch Basin/Field Inlet.

Connect existing or new lateral and underdrain pipes to catch basin/field inlet structure. If existing lateral pipe is to be reconnected, existing lateral pipe is to be thoroughly cleaned of all extraneous material before being reconnected. Connections are to be made flush with inside face of structure wall, and are to project outside of structure sufficient distance to allow for proper connection with adjoining lateral and underdrain pipe sections. Lateral and underdrain pipes are to fit neatly and tightly within structure wall, and connections thoroughly sealed with epoxy grout and mortar. Any excess openings in structure walls are to be blocked up with brick and mortar. Finish off with concrete, completely filling in all voids and thoroughly sealing up both exterior and interior sides of opening. Surfaces of blocked up opening are to be smooth, blend in with surrounding surface, without any excess projections, and dampproofed.

Apply two coats of appropriate dampproof material to all new exterior and interior concrete surfaces of catch basin/field inlet structure, making sure that all surfaces are thoroughly covered.

S604-3.06 Clean Existing Catch Basin/Field Inlet and Lateral Pipe

Existing catch basin/field inlet structure and lateral pipe is to be cleaned of all extraneous material and kept clean until final acceptance of work.

S604-3.07 Dampproof Existing Catch Basin/Field Inlet

Dampproofing is to be applied to all existing concrete catch basin/field inlet structure surfaces that are exposed, and where existing dampproofing is either damaged or nonexistent.

Entire surface area of existing concrete catch basin/field inlet structure are to be thoroughly cleaned by sand blasting or water pressure, removing all existing dampproofing and other extraneous materials, and otherwise prepared so as to be in condition suitable for proper application of new dampproof material.

For interior surface of existing concrete catch basin/field inlet structure that is being adjusted, relocated or cleaned, and new dampproofing material is required to be applied due to damaged or missing dampproofing, entire interior surface of structure is to be treated.

For exterior surface of existing concrete catch basin/field inlet structure that is being relocated, and new dampproofing material is required to be applied due to damaged or missing dampproofing, entire exterior surface of structure is to be treated.

S604-3.08 Temporary Adjustment of Catch Basin/Field Inlet Frame and Grate

Where required for an extended layover, or for winter shut down, temporary riser section is to be built on top of existing catch basin/field inlet structure walls to temporarily set frame and grate to grade.

Fill existing keyway with sand, construct temporary riser using brick and mortar on top of existing structure walls to proper height necessary to set frame and grate to grade. One coat of dampproof material is to be applied to exterior and interior surfaces of temporary riser section. Prior to final paving, remove temporary riser section and sand fill, and properly dispose of all materials.

After removal of temporary riser section, construct permanent riser section and install catch basin/field inlet, and/or access frame and cover, in accordance with appropriate subsections for catch basin/field inlet construction in Section S604 Catch Basin and Sewer Manhole.

S604-3.09 Abandon and Remove Existing Catch Basin/Field Inlet

Existing catch basin/field inlet frame and grate, and if required access frame and cover, is to be removed, cleaned of all extraneous material and returned to MCPW. Existing catch basin/field inlet structure is to be completely removed and disposed of.

Existing lateral pipe is to be abandoned in place and plugged. For existing lateral pipe 6 inch diameter and smaller, insert rubber gasketed mechanical type permanent plug into lateral pipe. For existing lateral pipe over 6 inch diameter, insert brick into lateral pipe until opening is plugged as much as possible. Completely fill and seal remaining void at open end of existing lateral pipe with regular cement mortar type II cement.

If existing underdrain pipe system is to remain, connect open ends with new underdrain pipe.

S604-3.10 Catch Basin Wall Repair

Existing catch basin wall that is to be repaired is to be dismantled to point where wall is structurally sound. Work to repair damaged wall is to be consistent with original construction. Catch basin and lateral pipe are to be cleaned to main sewer of all construction and any other extraneous debris, and maintained clean for duration of project. All debris removed is to be promptly disposed of.

S604-3.11 Adjustment or Replacement of Sewer Manhole Frame and Cover

Existing sewer manhole frame and cover are to be removed and cleaned of all extraneous material. If replacement frame and cover are to be installed, existing frame and cover are to be disposed of.

Remove portion of existing sewer manhole riser section as necessary to retrofit frame and cover to new finished grade and on sound bearing. For adjustment use either new concrete adjustment ring set on 1/2 inch thick bed of mortar, or bricks/concrete blocks and mortar. After placing frame, frame and rebuilt riser section are to be completely encased within 12 inches of concrete. Top of concrete encasement is to be minimum of 3-1/2 inches below grade in pavement area, and 5 inches below grade outside of pavement area. One coat of dampproof material is to be applied to interior surface of all adjustment courses.

S604-3.12 Temporary Adjustment of Sewer Manhole Frame and Cover

Where required for an extended layover, or for winter shut down, temporary riser section is to be built on top of existing sewer manhole structure walls to temporarily set frame and cover to grade.

Remove portion of existing sewer manhole riser section as necessary to retrofit frame and cover to new grade and on sound bearing. Construct temporary riser using brick and mortar on top of existing structure walls to proper height necessary to set frame and cover to grade. After placing frame, frame and temporary riser section are to be completely encased within 12 inches of concrete. Apply one coat of dampproof material to interior surface of temporary riser section.

Prior to final paving, remove temporary riser section and concrete encasement, and properly dispose of all materials.

After removal of temporary riser section, construct permanent riser section and install sewer manhole frame and cover in accordance with Subsection S604-3.11 Adjustment or Replacement of Sewer Manhole Frame and Cover.

S604-4 METHOD OF MEASUREMENT

S604-4.01 Catch Basin/Field Inlet

Quantity to be measured for payment will be number of new catch basin/field inlet structures constructed; or existing catch basin/field inlet structures modified, relocated, cleaned, or abandoned.

For type D catch basin, measurement will be made with frame and grate, including access frame and cover, counted as one complete unit.

Under this pay unit, maximum invert depth for new catch basin/field inlet structure construction will be up to 4 feet 6 inches (4.50'), as measured between elevation of top of grate and elevation of interior floor of new structure.

S604-4.02 Additional Depth of New Catch Basin/Field Inlet

Quantity to be measured for payment will be number of linear feet of additional depth for new catch basin/field inlet structure construction, where maximum invert depth exceeds 4 feet 6 inches (4.50') as specified in Subsection S604-4.01 Catch basin/field inlet, as measured to nearest tenth (0.10) of foot.

S604-4.03 Adjust Existing Catch Basin/Field Inlet Frame and Grate, Access Frame and Cover

Quantity to be measured for payment will be number of existing catch basin/field inlet frame and grate, and access frame and cover, units adjusted. For type D catch basin, measurement will be made with frame and grate, including access frame and cover, counted as one complete unit.

S604-4.04 Dampproof Existing Catch Basin/Field Inlet

Quantity to be measured for payment will be number of existing catch basin/field inlet structures where entire exterior and/or interior portion is required to be dampproofed. Measurement will be made separately for both interior and exterior dampproofing, they will not be counted as one complete unit.

Separate payment for dampproofing will be limited only to those existing catch basin/field inlet structures that are not already dampproofed, or where existing dampproofing needs to be completely replaced.

No separate payment will be made for dampproofing of new catch basin/field inlet structure construction.

S604-4.05 Temporary Adjustment of Catch Basin/Field Inlet Frame and Grate

Quantity to be measured for payment will be number of catch basin/field inlet structures topped with temporary brick riser section.

S604-4.06 Catch Basin Wall Repair

Quantity to be measured for payment will be number of linear feet of catch basin wall repaired as measured to nearest tenth (0.10) of foot. Linear feet of catch basin wall repaired will be measured vertically along area repaired, and will include all sides of catch basin.

> i.e.: Four walls of catch basin that are repaired for 1 foot in height will be measured as 1 linear foot of repair.

S604-4.07 Sewer Manhole Frame and Cover

Quantity to be measured for payment will be number of sewer manhole frames and covers adjusted, replaced, or temporarily adjusted.

S604-5 BASIS OF PAYMENT

S604-5.01 Catch Basin/Field Inlet - General

Unit price bid includes cost of: sheeting; shoring; verifying existing and proposed top of grate and invert elevations; furnishing and installing precast structure; constructing cast-in-place structure; concrete; forms; key way; rebar; mortar; epoxy grout; dampproofing; frames and grates; stone bedding leveling course; field repair of improperly fitting frame and grate; providing openings for connection of lateral and underdrain pipe; connecting and sealing lateral and underdrain pipes to structure; cleaning out structure and lateral pipe; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

Where an existing catch basin is being replaced with new catch basin, and existing catch basin falls within general trench excavation limits for new catch basin and/or lateral pipe, removal of existing catch basin structure is considered to be part of general trench excavation for new catch basin and/or lateral pipe.

Where an existing catch basin is being replaced with new catch basin, and existing catch basin falls outside of general trench excavation limits for new catch basin and/or lateral pipe, removal of existing catch basin structure will not be considered to be part of general trench excavation for new catch basin and/or lateral pipe, and will be paid for separately under Section R206 Trench and Culvert Excavation.

Excavation including hand and tunnel excavation, and furnishing and placing of select granular backfill (sewer) will be paid for under separate bid items or included in unit price bid for item as indicated in item description.

Pavement base or pavement restoration, will be paid for under separate bid items or included in unit price bid for item as indicated in item description.

In addition, unit price bid for following individual work items will also include cost of:

A. <u>Type C Catch Basin</u>

Unit price bid also includes cost of: furnishing and installing hooded trap and underdrain check valve.

B. <u>Type D Catch Basin</u>

Unit price bid also includes cost of: furnishing and installing access frame and cover; field repair of improperly fitting access frame and cover.

C. <u>Type A and Type B Catch Basin (Furnished)</u>

Unit price bid also includes cost of: making arrangements for and picking-up precast structure, including frame and grate.

D. <u>Type B and Type D Catch Basin – Installed</u>

Unit price bid also includes cost of: excavation, backfill, select granular backfill (sewer).

E. <u>Type B and Type D Catch Basin – Installed (Furnished)</u>

Unit price bid also includes cost of: making arrangements for and picking-up precast structure, including frame and grate; excavation, backfill, select granular backfill (sewer).

F. Additional Depth of New Catch Basin/Field Inlet

Unit price bid also includes cost of: furnishing and constructing additional cast-in-place portion that exceeds maximum invert depth of 4 feet 6 inches (4.50').

G. Adjust Existing Catch Basin/Field Inlet Frame and Grate, Access Frame and Cover

Unit price bid also includes cost of: excavation; backfill; select granular backfill (sewer); removing, cleaning and resetting existing frame and grate; access frame and cover; repairing existing structure walls; scarifying or removal of existing concrete riser section; removal temporary brick riser; furnishing and installing concrete cap; epoxy polysulfide grout; drilling holes.

S604-5.02 Modify Existing Capstone Catch Basin

Unit price bid includes cost of: excavation; backfill; removing, cleaning, returning or disposing existing capstone; removing, cleaning, resetting or disposing existing frame and grate; repairing existing capstone catch basin walls; hand dismantling or otherwise preparing top portion existing capstone catch basin walls; furnishing and installing concrete lintel; brick and mortar or concrete cap; masonry; forms; epoxy polysulfide grout; rebar; grout; dampproofing; cleaning capstone catch basin structure and lateral pipe; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

Furnishing and installing new frame and grate will be paid for separately under Section R655 Frame and Grate.

S604-5.03 Relocate Existing Catch Basin/Field Inlet

Unit price bid includes cost of: removing, moving, resetting and cleaning existing catch basin/field inlet structure; frame and grate; access frame and cover; repairing existing catch basin/field inlet walls; disconnecting existing lateral and underdrain pipes; connecting and sealing existing or new lateral and underdrain pipes; plugging existing lateral pipe to be abandoned; furnishing and installing permanent mechanical plug; brick; cement mortar; furnishing and installing brick and mortar or concrete cap; concrete; forms; epoxy polysulfide grout; rebar; grout; drilling holes; blocking up and sealing excess openings; dampproofing; cleaning catch basin/field inlet structure; lateral pipe; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

Furnishing and installing new frame and grate, and if required access frame and cover, will be paid for separately under Sections R655 Frame and Grate and S655 Frame and Grate.

S604-5.04 Clean Existing Catch Basin/Field Inlet and Lateral Pipe

Unit price bid includes cost of: cleaning existing catch basin/field inlet and lateral pipe; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

S604-5.05 Dampproof Existing Catch Basin/Field Inlet

Unit price bid includes cost of: furnishing and applying dampproof material; cleaning existing surfaces by sand blasting, water pressure, or any other acceptable method; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

S604-5.06 Temporary Adjustment of Catch Basin/Field Inlet Frame and Grate

Unit price bid includes cost of: excavation; backfill; select granular backfill (sewer); furnishing, installing, removing and disposing temporary brick and mortar riser section; sand fill; setting, removing, maintaining and installing catch basin/field inlet frame and grate; access frame and cover; dampproofing; and furnishing all labor, material and equipment necessary to complete work.

Final adjustment or replacement of catch basin/field inlet frame and grate, and/or access frame and cover, will be paid for under separate bid items.

S604-5.07 Abandon and Remove Existing Catch Basin/Field Inlet

Unit price bid includes cost of: removing, cleaning and returning existing catch basin/field inlet frame and grate; access frame and cover; removing and disposing existing catch basin/field inlet structure; disconnecting, abandoning and plugging existing lateral; furnish and install new underdrain pipe to reconnect open ends of existing underdrain pipe; furnishing and installing permanent mechanical plug; brick; cement mortar; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

S604-5.08 Catch Basin Wall Repair

Unit price bid includes cost of: excavation; furnishing and installing select granular backfill (sewer); dismantling and repairing damaged catch basin walls; cleaning existing catch basin and lateral; disposing of all debris; furnishing and applying dampproofing on interior and exterior areas of new concrete; and furnishing all labor, material and equipment necessary to complete work.

S604-5.09 Adjustment or Replacement of Sewer Manhole Frame and Cover

Unit price bid includes cost of: excavation; backfill; removing, cleaning, resetting or returning existing manhole frame and cover; field repair of improperly fitting manhole frame and cover; preparing existing manhole riser to install manhole frame and cover to finished grade; removal of existing brick courses as necessary; furnishing and installing concrete adjustment ring; bricks/concrete blocks; mortar mix; concrete encasement; dampproofing; cleaning existing manhole structure; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

For manhole frame and cover units that are furnished, unit price bid will also cost of: picking up and installing new manhole frame and cover.

S604-5.10 Temporary Adjustment of Sewer Manhole Frame and Cover

Unit price bid includes cost of: excavation; backfill; removing, cleaning and resetting existing sewer manhole frame and cover; preparing existing sewer manhole riser including removal of portion of existing sewer manhole structure as necessary; furnishing, installing and removing temporary brick and mortar riser section and concrete encasement; dampproofing; cleaning existing sewer manhole structure; disposing of all removed materials; and furnishing all labor, material and equipment necessary to complete work.

Final adjustment or replacement of sewer manhole frame and cover will be paid for under separate bid item.

S604-5.11 New Sewer Manhole Frame and Cover

Unit price bid includes cost of: excavation; backfill; furnishing and installing new manhole frame and cover; field repair of improperly fitting manhole frames and covers; preparing manhole riser to install manhole frame and cover to finished grade; furnishing and installing concrete adjustment ring; bricks/concrete blocks; mortar mix; concrete encasement; dampproofing; cleaning manhole structure; disposing all extraneous material; and furnishing all labor, material and equipment necessary to complete work.

For manhole frame and cover units that are furnished, unit price bid will also cost of: picking up and installing new manhole frame and cover.

S604-5.12 Excavation, Backfill, Pavement Base Restoration and Pavement Restoration

Excavation including hand and tunnel excavation, furnishing and placing of stone bedding and select granular backfill (sewer), and either pavement base or pavement restoration, will be paid for under separate bid items or included in unit price bid for item as indicated in item description.

No separate payment will be made for placement of select backfill material excavated from trench.

Excavation that is included in bid item does not include rock excavation. Rock excavation will be paid for under separate bid item.

Where bid item includes cost of pavement base restoration, pavement base may consist of either concrete base or asphalt base course, as required in Contract Documents. Unit price bid will be same regardless of which type of pavement base is used, and bid items will include cost of: subbase courses type 1 and type 2; either Class C concrete foundation or asphalt base course.

Where bid item includes cost of pavement restoration, pavement base may consist of either concrete base or asphalt base course, as required in Contract Documents. Unit price bid will be same regardless of which type of pavement base is used, and bid items will include cost of: subbase courses type 1 and type 2; either Class C concrete foundation or asphalt base course; asphalt binder course; asphalt top course; and asphalt tack coat.

Payment will be made under:

ITEM NO.	ITEM	PAY UNIT
S604.30	Type A Catch Basin	Each
S604.31	Type B Catch Basin	Each
S604.32	Type C Catch Basin	Each
S604.33	Type D Catch Basin	Each
S604.34	Field Inlet	Each
S604.35	Type A Catch Basin (Furnished)	Each
S604.36	Type B Catch Basin (Furnished)	Each
S604.3701	Type B Catch Basin - Installed (Including Excavation, Backfill and Pavement Base Restoration)	Each
S604.3702	Type B Catch Basin - Installed (Including Excavation, Backfill and Pavement Restoration)	Each
S604.3703	Type D Catch Basin - Installed (Including Excavation, Backfill and Pavement Base Restoration)	Each
S604.3704	Type D Catch Basin - Installed (Including Excavation, Backfill and Pavement Restoration)	Each
S604.3801	Type B Catch Basin - Installed (Furnished) (Including Excavation, Backfill and Pavement Base Restoration)	Each
S604.3802	Type B Catch Basin - Installed (Furnished) (Including Excavation, Backfill and Pavement Restoration)	Each
S604.40	Additional Depth Type A Catch Basin	Linear Foot
S604.41	Additional Depth Type B Catch Basin	Linear Foot
S604.4101	Additional Depth Type B Catch Basin (Including Excavation and Backfill)	Linear Foot
S604.42	Additional Depth Type C Catch Basin	Linear Foot
S604.43	Additional Depth Type D Catch Basin	Linear Foot
S604.44	Additional Depth Field Inlet	Linear Foot
S604.50	Adjust Existing Catch Basin Frame and Grate (Including Excavation and Backfill)	Each
S604.5001	Adjust Existing Field Inlet Frame and Grate (Including Excavation and Backfill)	Each
S604.5002	Adjust Existing Catch Basin Access Frame and Cover (Including Excavation and Backfill)	Each
S604.5004	Adjust Existing Catch Basin Frame and Grate (Including Excavation, Backfill and Pavement Base Restoration)	Each
S604.5005	Adjust Existing Catch Basin Frame and Grate (Including Excavation, Backfill and Pavement Restoration)	Each
S604.51	Modify Existing Capstone Catch Basin (Including Excavation and Backfill)	Each
S604.52	Relocate Existing Catch Basin	Each
S604.5201	Relocate Existing Field Inlet	Each
S604.53	Clean Existing Catch Basin and Lateral Pipe	Each
S604.5301	Clean Existing Field Inlet and Lateral Pipe	Each
S604.54	Dampproof Existing Catch Basin	Each
S604.5401	Dampproof Existing Field Inlet	Each

ITEM NO.	ITEM	PAY UNIT
S604.55	Temporary Adjustment of Catch Basin Frame and Grate (Including Excavation and Backfill)	Each
S604.5501	Temporary Adjustment of Field Inlet Frame and Grate (Including Excavation and Backfill)	Each
S604.560101	Abandon and Remove Existing Catch Basin	Each
S604.560201	Abandon and Remove Existing Catch Basin (Including Excavation and Backfill)	Each
S604.560302	Abandon and Remove Existing Catch Basin (Including Excavation, Backfill and Pavement Base Restoration)	Each
S604.560303	Abandon and Remove Existing Catch Basin (Including Excavation, Backfill and Pavement Restoration) and Backfill)	Each
S604.570101	Abandon and Remove Existing Field Inlet	Each
S604.570201	Abandon and Remove Existing Field Inlet (Including Excavation	Each
S604.570302	Abandon and Remove Existing Field Inlet (Including Excavation, Backfill and Pavement Base Restoration)	Each
S604.570303	Abandon and Remove Existing Field Inlet (Including Excavation, Backfill and Pavement Restoration)	Each
S604.58	Catch Basin Wall Repair	Linear Foot
S604.60	Adjust Existing Sewer Manhole Frame and Cover (Including Excavation and Backfill)	Each
S604.61	Replace Existing Sewer Manhole Frame and Cover (Furnished) (Including Excavation and Backfill)	Each
S604.62	Temporary Adjustment of Sewer Manhole Frame and Cover (Including Excavation and Backfill)	Each
S604.63	Replace Existing Sewer Manhole Frame and Cover (Including Excavation and Backfill)	Each
S604.64	Replace Existing Sewer Manhole Frame and Cover with New Watertight Manhole Frame and Cover (Including Excavation and Backfill)	Each
S604.65	Clean Existing Manhole	Each
S604.66	New Sewer Manhole Frame and Cover (Including Excavation and Backfill)	Each
S604.67	New Sewer Manhole Frame and Cover (Furnished) (Including Excavation and Backfill)	Each
S604.68	New Watertight Sewer Manhole Frame and Cover (Including Excavation and Backfill)	Each
S604.69	New Watertight Sewer Manhole Frame and Cover (Furnished) (Including Excavation and Backfill)	Each

REVISED March 3, 2015