



APWA (2006) SECTION 201

CLEARING AND GRUBBING

Revised 07/24/2020

1. In the Subsection 201.1 GENERAL, delete the second sentence and replace with the following:
Clearing and grubbing shall be performed in advance of the grading operations.
2. In the Subsection 201.4.1 CONSTRUCTION METHODS, add the following:

Clearing and grubbing operations shall include stripping of the existing ground surface. Stripping shall be achieved only by cutting, i.e., ground depressions or narrow sections of tributary arroyos should not be inadvertently filled during the foundation preparation. The resulting area shall be cut to provide a uniform, relatively level surface.

3. In Subsection 201.5 LIMIT LINES, add the following:

Unless otherwise approved by the Engineer or otherwise specifically designated on the plans, limits of clearing & grubbing shall not exceed slope limits as shown with finished grade contours on plans.

END OF SECTION



APWA (2006) SECTION 204

FILL CONSTRUCTION

Revised 07/24/2020

1. Delete this section in its entirety and replace with Supplemental Technical Specification Section 203, EXCAVATION, BORROW AND FILL.

END OF SECTION



SUPPLEMENTAL SPECIFICATION 203

EXCAVATION, BORROW, AND FILL

Revised 07/24/2020

203.1 GENERAL

203.1.1 Excavation, borrow, and fill shall consist of all earthwork operations involved in grading and construction in accordance with the plans and specifications, except for excavation and backfill for structures; excavation and backfill for trenching; and any other earthwork operations separately designated.

203.2 REFERENCES

This section incorporates the following publications by reference:

- | | |
|---------------|-------------------|
| • ASTM D-1557 | This publication: |
| • ASTM D-422 | • Section 201 |
| • ASTM D-4318 | • Section 1506 |
| • ASTM D-6938 | |

203.3 MATERIAL CLASSIFICATIONS

203.3.1 UNSUITABLE MATERIAL

Unsuitable materials shall include all material that contains debris, roots, organic matter, stones or boulders too large to be used in the intended construction, or other materials that are determined by the Engineer to be unsuitable. Otherwise suitable materials which are unsuitable due to excess moisture content will not be classified as unsuitable material unless it cannot be dried by manipulation, aeration or blending with other materials satisfactorily as determined by the Engineer.

Material that is unsuitable for the intended use shall be excavated and removed from the site or otherwise disposed of as approved by the Engineer. Unsuitable material shall be disposed in accordance with environmental requirements and as approved by the Project Manager.

The removal and disposal of such unsuitable material will be paid for as excavation, removal and disposal for the quantities involved.

203.3.2 FILL MATERIAL

All fill material shall be free of vegetation and debris. Clods or hard lumps of earth of 6 inches in greatest dimension shall be broken up. Fill materials shall be free of



vegetation and debris and contain no rocks larger than 3 inches. All fill and backfill material, including selection and blending of material, shall be subject to approval by the Geotechnical Engineer. All fill material shall conform to the requirements for Structural Fill as outlined below.

203.3.3 STRUCTURAL FILL AND BACKFILL

Structural fill and backfill shall consist of material excavated from on-site or Borrow Material that meets the requirements described in this section. The blended excavated site soils from within the area will be generally suitable for use as structural fill. Blending of soils shall be considered incidental to the Work and no separate payment will be made for this effort. Gradation of the fill material, as determined in accordance with ASTM D-422, shall be as follows:

Sieve Size (Square Openings)	Percent Passing (by Weight)
3 inch	100
No. 4	60-100
No. 200	5-40

All structural fill shall be blended as necessary to produce a homogeneous material. The plasticity index of the structural fill shall be no greater than 15 when tested in accordance with ASTM D-4318.

203.3.4 BORROW MATERIAL

Borrow material is defined as material obtained from an approved borrow source to be used as structural fill material for construction. If borrow material is required, the Contractor shall identify a borrow site and tests will be performed to verify compliance of the material with structural fill requirements per this specification. The Contractor shall not import any borrow material prior to verification that material meets the requirements contained herein and he has received approval to import the material by the Owner.

203.3.5 SURPLUS MATERIAL

The Contractor shall make all arrangements for disposal of surplus material in accordance with environmental requirements and as approved by the Project Manager. If the material is disposed of on-site, the Contractor shall place material in locations as designated by the Owner. Do not remove materials from the project limits without the approval of the Owner. The Contractor shall satisfy himself that there is



sufficient material available for the completion all items requiring fill material before disposing of any indicated surplus material inside or outside of the project area. Any shortage of material caused by premature disposal of surplus material by the Contractor shall be replaced by the Contractor and no payment will be made for such replacement.

203.4 CONSTRUCTION REQUIREMENTS

203.4.1 GENERAL

Contractor shall perform necessary clearing, grubbing and stripping in accordance with Section 201 of the Specifications, "Clearing and Grubbing", prior to any excavation, grading, or other earthwork operations. Excavation, fill construction and backfill shall be finished to reasonably smooth and uniform surfaces.

All slopes and cuts should be made in accordance with CFR 29 Part 1926 Subpart P, and all other applicable regulations.

203.4.2 EXCAVATION

Excavation shall consist of the removal of earth involved in grading and construction according to the plans, except other excavations separately designated.

Temporary construction excavations shall be made in accordance with CFR 29 Part 1926 Subpart P, and all other applicable regulations. Surface water shall be routed such that it does not flow down the face of the excavation slopes. Where insufficient space exists for open cut excavations, a shoring system will be required. All required shoring systems shall be considered incidental to the cost of excavation and no additional payment will be made for this item. All excavations shall comply with all applicable safety regulations.

203.4.3 FILL CONSTRUCTION

Fill construction shall consist of constructing embankments, the placing and compacting of approved material within areas where unsuitable material has been removed; and the placing and compacting of suitable materials in holes, pits, and other depressions.

203.3.1 PLACING AND COMPACTING

Fill or backfill, consisting of soil approved by the Engineer and/or project's Geotechnical Report, should be placed in controlled compacted layers not exceeding 8 inches (compacted) with approved compaction equipment. All fill material should be blended as necessary to produce a homogeneous fill. The fill should be raised uniformly and should be benched into the native soils. All compaction should be accomplished to a minimum of 95 percent of maximum dry density as determined in



accordance with ASTM D-1557. No lifts of high permeability material or material differing substantially from the lift below shall be permitted.

At locations where it would be impractical to use mobile power compacting equipment, fill layers shall be compacted to the specified requirements by any approved method that will obtain the specified compaction.

203.5 TESTING

Tests for degree of compaction should be determined in accordance with ASTM D-1556 or ASTM D-6938.

Continuous, full time observation and field tests should be conducted during fill and backfill placement by a representative of the Engineer to assist the contractor in evaluating the required degree of compaction. If less than the required compaction is required, additional compaction effort should be made with adjustment of the moisture content as necessary until 95 percent compaction is obtained.

203.6 MEASUREMENT AND PAYMENT

203.6.1 EXCAVATION

Payment will be made on the unit price per cubic yard for unclassified excavation as provided in the Unit Price Bid Proposal. Payment will include the cost for all excavation, removal, storage and disposal of unsuitable material, hauling of surplus material to the designated location(s), and hauling of select material within the construction site. No payment will be made for excavation of stockpiled materials, structural excavation of previously placed materials and over depth cuts. No payment will be made for shrink or swell. Excavation beyond the authorized cross section will not be included in measurement or payment.

203.6.2 BORROW

Borrow material will be measured by the cubic yard in-place after compaction. Field topographic surveys, as described in Supplemental Technical Specification 1506 or 1507 "Construction Staking", will be used to determine in-place quantities.

Payment will be made on the unit price per cubic yard for Borrow. Payment will include excavation & haul from Borrow Area, moisture conditioning, required blending of soils, placement, compaction, and other related work.

END OF SECTION



APWA (2006) SECTION 1012

NATIVE GRASS SEEDING

Revised 07/24/2020

1. In subsection 1012.4 MATERIALS delete paragraphs 1012.4.1.1 and 1012.4.1.2 in their entirety and replace with the following:

Harvey Jones Upland Seed Mix			
		Rate (pls lbs/acre)	
Common Name	Species Name	General Lifeform	Upland
Western wheatgrass	<i>Pascopyrum smithii</i>	Graminoid	3
Indian ricegrass	<i>Achnatherum hymenoides</i>	Graminoid	2.5
Side oats grama	<i>Bouteloua curtipendula</i>	Graminoid	1.5
Blue grama	<i>Bouteloua gracilis</i>	Graminoid	1.5
Galleta grass	<i>Pleuraphis jamesii</i>	Graminoid	1.5
Alkali sacaton	<i>Sporobolus airoides</i>	Graminoid	1
Sand dropseed	<i>Sporobolus cryptandrus</i>	Graminoid	1
Annual sunflower	<i>Helianthus annuus</i>	Forb	2
Hopi (Indian) tea	<i>Thelesperma megapotamicum</i>	Forb	1
Hairy goldenaster	<i>Heterotheca villosa</i>	Forb	0.5
Lacy tansyaster	<i>Xanthisma spinulosum</i>	Forb	0.5
Many flowered blazing star	<i>Mentzelia multiflora</i>	Forb	0.5
Wild four o'clock	<i>Mirabilis multiflora</i>	Forb	0.5
Pale evening primrose	<i>Oenothera pallida</i>	Forb	0.5
Rocky mountain bee plant	<i>Cleome serrulata</i>	Forb	0.5
Green prairie coneflower	<i>Ratibida tagetes</i>	Forb	0.5
Firewheel	<i>Gaillardia pulchella</i>	Forb	0.25
Prairie flax	<i>Linum lewisii</i>	Forb	0.25
Desert Marigold	<i>Baileya multiradiata</i>	Forb	0.25
TOTAL			19.25

Seed rate is given in pounds of pure live seed (P.L.S.) per acre.

END OF SECTION



SUPPLEMENTAL SPECIFICATION 1504

NPDES COMPLIANCE

Revised 08/21/2020

1504.1 SCOPE OF WORK

The work under this section includes compliance with the U.S. Environmental Protection Agency (EPA), National Pollutant Discharge Elimination System (NPDES) Regulations for Storm Water Discharges from construction sites. This work consists of implementing and maintaining a plan to control erosion, pollution, sediment and runoff during the construction of the project.

1504.2 MEASUREMENT AND PAYMENT

1504.2.1 UNIT PRICE BID PROPOSALS

For Unit Price Bid Proposals, NPDES Compliance shall be a Lump Sum (LS) item, paid for as follows:

1504.2.1.1 Fifteen (15) percent of the Lump Sum unit price amount shall be paid after the Contractor has completed an EPA Notice of Intent (NOI) for Storm Water Discharges Associated with Construction Activity Under a NPDES General Permit, Form 3510-9, or a Low Erosivity Waiver (LEW) form, if applicable. A copy of the NOI or LEW form must be delivered to the Owner and the original filed with the EPA. All required erosion control measures sufficient to begin construction must also be in place. This will be defined in the plan specifications and/or the SWPPP.

1504.2.1.2 Payment for an additional sixty percent (60%) of the Lump Sum unit price amount shall be prorated based on the Actual Percent Complete on the Application for Payment as approved by the Architect, Engineer or Landscape Architect. For example, if the Contractor is 20% complete, the contractor can take the 20% (0.2) and multiply it by 60% (0.6) of the Lump Sum unit price amount and receive that portion.

In order to receive payments, the field inspection forms must be sent in with the Application for Payment each month. If there are deficiencies maintaining or implementing the SWPPP and its Best Management Practices (BMPs), the payment will be withheld until the deficiencies are corrected.



1504.2.1.3 The remaining twenty-five (25) percent of the Lump Sum unit price amount will be based on the completion of an EPA Notice of Termination (NOT) of Coverage Under a NPDES General Permit for Storm Water Discharges Associated with Construction Activity and BMP removal. A copy of the NOT must be delivered to the Owner and the original filed with the EPA. BMPs must be removed as defined in the plan specifications or SWPPP. This is done in case there are some BMPs that must remain until final stabilization is met, and that there are no more NPDES concerns for the Contractor.

END OF SECTION



SUPPLEMENTAL SPECIFICATION 1505

CONTROL OF STORM WATER AND NUISANCE FLOW

Revised 07/24/2020

1505.1 DESCRIPTION

This work covers the control of storm and nuisance flow water in the vicinity of this project.

1505.2 CONSTRUCTION REQUIREMENTS

All permanent work shall be performed in areas free from water. The CONTRACTOR shall construct and maintain all dikes and drainage ditches necessary for the elimination of water from work areas and shall furnish, install, maintain, and operate all necessary pumping and other dewatering equipment required for dewatering the various work areas. Two (2) types of flow can be expected;

- 1) Continuous or intermittent flow through the main arroyo;
- 2) Local sheet flow from adjacent properties or adjacent streets.

The CONTRACTOR is responsible for adequacy of the scheme or plans, or for furnishing all equipment, labor and materials necessary for dewatering the work areas and breaking up and removing such ice or snow as may have formed or settled in the work area. The CONTRACTOR shall be fully responsible for all dewatering operations, and the cost of all dewatering operations shall be included in the lump sum price for this work. The CONTRACTOR shall also be responsible for removal of any sediment deposited by storm and nuisance water, and the cost of sediment removal work shall be included in the lump sum price for this work.

In the event that storm flow, snowmelt or other water flows overtop the Contractor's diversion method, the Contractor will be responsible for any and all damage, including damage to the existing channel and any damage to new work and is responsible for immediate resolution and repair in a manner acceptable to SSACFCA.

Diversion methods may be by use of sandbag diversion channels, sandbag dams, pumping or piping around or over the work areas, or any method or combination.

1505.3 BASIS OF PAYMENT



The bid item for this effort will be on a Lump Sum (LS) basis. Providing and maintaining the diversion and care of water, regardless of the amount of water actually handled, shall be paid for as follows:

Payment will be made as a percentage of the dollar amount of work completed to date minus the Mobilization bid item.

<u>Pay Item</u>	<u>Pay Unit</u>
Control of Storm Water and Nuisance Flow	LS

END OF SECTION



SUPPLEMENTAL SPECIFICATION 1507

CONSTRUCTION STAKING – SIMPLIFIED VERSION

Revised 08/20/2020

1507.1 DESCRIPTION

This work consists of construction staking lines, grades, and layouts by the Contractor in accordance with the plans and specifications and as directed by the Engineer for the control and completion of the project.

1507.2 MATERIALS

The Contractor shall furnish all stakes, templates, straightedges, surveying equipment and other devices necessary for establishing, checking, marking, and maintaining points, including P.I.'s, P.C.'s, P.T.'s, and lines, grades and layouts. As directed by the Engineer, points shall be referenced so that they may later be re-established.

1507.3 CONSTRUCTION REQUIREMENTS

The Contractor shall be responsible for all control, slope stakes, cut stakes, offset stakes, benchmarks, blue tops or other staking necessary for proper execution of the work, or as requested by the Project Manager, to assure compliance with the plans.

1507.4 CONSTRUCTION SURVEYS

The contractor shall obtain and pay for the services of a Professional Surveyor registered in the State of New Mexico to perform surveys consisting of the following phases:

Phase 1: A cross-section survey, with no greater than 50 foot spacing, to determine the Project Site (including Borrow Area, if applicable) existing ground elevations prior to construction, after clearing and grubbing and after removal of trash and debris. Data collected shall be of sufficient detail, including all breaks in the terrain, to be able to create an original ground digital terrain model (DTM). The Project Site & Borrow Area "original ground" DTM shall be submitted to the Engineer for review and acceptance prior to proceeding with excavation and export of material. Survey data must be sufficient to determine future earthwork quantities.

Phase 2: A cross-section survey, with no greater than 50 foot spacing, to determine the Borrow Area (if applicable) finished ground elevations post-construction, after all required borrow material is removed. Data collected shall be of sufficient detail, including all breaks in the terrain,



to be able to create a finished ground digital terrain model (DTM). The Borrow Area “finished ground” DTM shall be submitted to the Engineer for review and acceptance prior to payment for “Borrow” Bid Item. Survey data must be sufficient to determine earthwork quantities.

Phase 3: A cross-section survey, with no greater than 50 foot spacing, will be completed for the project site (excluding borrow area) after construction to demonstrate compliance with the design grades, structure elevations, inverts, alignments/profiles, etc. shown on the plan set. Phase 3 Survey will also include the update and completion of as-built survey for the project. It is the responsibility of the contractor to coordinate with the surveyor on a regular basis to provide as-built information to incorporate in the survey.

All surveys must be certified by the Professional Surveyor and include complete documentation. Borrow Area surveys (Phases 1 and 2) must be used by the Professional Surveyor to compute the quantity of excavation, subject to the provisions for measurement in Section 203. Volume shall be based on the “average end area” computation. All computations of excavation must be submitted to the Engineer in sufficient detail. This submittal shall be such that methods and computations can be fully verified and are subject to approval by the Engineer. The Contractor shall also submit the electronic survey point files, including break lines, in a format compatible with AutoCAD Civil3D such that the Engineer can use the data for verification of cut/fill quantities.

At the end of the Project, the Engineer will transcribe the as-built information provided by the Contractor onto the Record Drawing. The Contractor’s Professional Surveyor will be required to stamp, sign and certify the information shown on the As-Built drawings.

1507.5 METHOD OF MEASUREMENT

Submit a construction-staking schedule of values as part of each Pay Application to the Project Manager for approval.

1507.6 BASIS OF PAYMENT

<u>Pay Item</u>	<u>Pay Unit</u>
Construction Staking	Lump Sum

SSCAFCA will make partial payments in accordance with the approved construction-staking schedule of values.

END OF SECTION

SUPPLEMENTAL TECHNICAL SPECIFICATION
SECTION 1511
TEMPORARY FENCE

DESCRIPTION

This work shall consist of furnishing, installing, and maintaining Temporary Plastic Barrier Fences of the type and at the locations shown in the plans or where directed by the Engineer.

MATERIALS

Materials for Temporary Plastic Barrier Fences shall meet the following requirements:

- **Fence:** High-density polyethylene mesh, ultraviolet-stabilized min. 2 years; minimum height 4.0 feet. Color: high-visibility orange or green. When used to protect trees or other vegetation, color shall be high-visibility orange.
- **Posts:** Rigid metal or wood posts, minimum length 6.0 feet.
- **Ties:** Steel wire, #14 gauge or nylon cable ties.
- **Warning signs:** Sheet metal, plastic or other rigid, waterproof material, 1.5 feet by 2.0 feet with 4 inch black letters on a white background. Text shall be: "Protected Site - Keep Out" unless otherwise specified.

CONSTRUCTION DETAILS

Fences shall be erected prior to moving construction equipment onto any area designated for protection.

The line of fences as indicated on the plans shall be staked or marked out on the ground by the Contractor and approved by the Engineer before any fence is installed. Where used for protection of individual trees, fence shall be placed at the drip line (extent of canopy). If not possible, placement shall be as close to the drip line as possible and in no case less than 5.0 feet away from the tree trunk.

On approval of the stakeout, posts shall be securely driven on 6.0 foot-maximum centers, normal to the ground, to a depth 1/3 of the total post length. Plastic barrier fence shall be placed along the side of all posts. Ends of fencing segments shall overlap a distance of at least one half the fence height.

Fencing shall be secured to posts with wire or cable ties at top, middle and bottom of post. Fastener shall be tight enough to prevent the fencing from slipping down. Overlaps shall also be securely fastened.

Barrier fence which is not orange in color shall be flagged at 6.0 foot intervals with red or orange florescent tape. Warning signs shall be mounted on the fence at no more than 100 foot intervals.

Maintenance shall commence immediately after erection of the fence and continue until one week prior to acceptance of the contract, and shall consist of: replacing damaged post(s) and fencing; re-fastening and tightening fencing; and restoring fence to its intended height.

Fencing used for tree or other vegetation protection shall not be temporarily removed to allow equipment access over a protected area, except as required for items of work specifically shown on the plans and approved by the Engineer in writing.

ITEM 607.41010010 - TEMPORARY PLASTIC BARRIER FENCE

METHOD OF MEASUREMENT

The quantity to be measured for payment will be the number of feet of Temporary Plastic Barrier Fence erected, measured along the top, to the nearest whole foot.

BASIS OF PAYMENT

The unit price bid shall include the cost of all labor, materials and equipment necessary to satisfactorily complete the work. Relocation of a fence from one location to another as directed by the Engineer shall be considered as a new location and will be separately paid.

SECTION 33 00 00 - TEMPORARY BYPASS PUMPING SYSTEMS

1.1 SCOPE

Under this item the Contractor is required to furnish all materials, labor, equipment, power, maintenance, etc. to implement a temporary pumping system for the purpose of diverting the existing flow around the work area for the duration of the project.

- 1.2 The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility. The Contractor shall employ the services of a vendor who can demonstrate to the engineer that he specializes in the design and operation of temporary bypass pumping systems. The vendor shall provide at least five (5) references of projects of a similar size and complexity as this project performed by his firm within the past three years. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.

2.0 REQUIREMENTS FOR SUBMITTING BIDS

- 2.1 The Contractor shall account for a specific bypass pumping plan and submit the anticipated construction costs to the Owner with his bid proposal. During construction, the selected Contractor shall submit the actual proposed plan to Owner / Engineer for review and approval prior to performing the bypass.
- 2.2 The Contractor shall submit to the Engineer detailed plans and descriptions outlining all provisions and precautions to be taken by the Contractor regarding the handling of existing wastewater flows. This plan must be specific and complete, including such items as schedules, locations, elevations, capacities of equipment, materials and all other incidental items necessary and/or required to insure proper protection of the facilities, including protection of the access and bypass pumping locations from damage due to the discharge flows, and compliance with the requirements and permit conditions specified in these Contract Documents. No construction shall begin until all provisions and requirements have been reviewed by the Engineer.

3.0 The plan shall include but not be limited to details of the following:

- 3.1 Staging areas for pumps;
- 3.2 Sewer plugging method and types of plugs;
- 3.3 Number, size, material, location and method of installation of suction piping;
- 3.4 Number, size, material, method of installation and location of installation of discharge piping;
- 3.5 Bypass pump sizes, capacity, number of each size to be on site and power requirements;
- 3.6 Calculations of static lift, friction losses, and flow velocity (pump curves showing pump operating range shall be submitted);
- 3.7 Standby power generator size, location;
- 3.8 Downstream discharge plan;
- 3.9 Method of protecting discharge manholes or structures from erosion and damage;
- 3.10 Thrust and restraint block sizes and locations;

- 3.11 Sections showing suction and discharge pipe depth, embedment, select fill and special backfill;
- 3.12 Method of noise control for each pump and/or generator;
- 3.13 Any temporary pipe supports and anchoring required;
- 3.14 Design plans and computation for access to bypass pumping locations indicated on the drawings;
- 3.15 Calculations for selection of bypass pumping pipe size;
- 3.16 Schedule for installation of and maintenance of bypass pumping lines;
- 3.17 Plan indicating selection location of bypass pumping line locations.

4.0 EQUIPMENT

- 4.1 All pumps used shall be fully automatic self-priming units that do not require the use of foot-valves or vacuum pumps in the priming system. The pumps may be electric or diesel powered. All pumps used must be constructed to allow dry running for long periods of time to accommodate the cyclical nature of effluent flows.
- 4.2 The Contractor shall provide the necessary stop/start controls for each pump.
- 4.3 The Contractor shall include one stand-by pump of each size to be maintained on site. Back-up pumps shall be on-line, isolated from the primary system by a valve.
- 4.4 Discharge Piping - In order to prevent the accidental spillage of flows all discharge systems shall be temporarily constructed of rigid pipe with positive, restrained joints. Under no circumstances will aluminum "irrigation" type piping or glued PVC pipe be allowed. Discharge hose will only be allowed in short sections and by specific permission from the engineer.

5.0 SYSTEM DESCRIPTION

Design Requirements:

- 5.1 Bypass pumping systems shall have sufficient capacity to pump a peak flow of 12 MGD and minimum flow of 0.5 MGD. The Contractor shall provide all pipeline plugs, pumps of adequate size to handle peak flow, and temporary discharge piping to ensure that the total flow of the main can be safely diverted around the section to be repaired. Bypass pumping system will be required to be operated 24 hours per day.
- 5.2 The Contractor shall have adequate standby equipment available and ready for immediate operation and use in the event of an emergency or breakdown. One standby pump for each size pump utilized shall be installed at the mainline flow bypassing locations, ready for use in the event of primary pump failure.
- 5.3 Bypass pumping system shall be capable of bypassing the flow around the work area and of releasing any amount of flow up to full available flow into the work area as necessary for satisfactory performances of work.

5.4 The Contractor shall make all arrangements for bypass pumping during the time when the main is shut down for any reason. System must overcome any existing force main pressure on discharge.

5.5 Performance Requirements:

- A It is essential to the operation of the existing sewerage system that there be no interruption in the flow of sewage throughout the duration of the project. To this end, the Contractor shall provide, maintain and operate all temporary facilities such as dams, plugs, pumping equipment (both primary and back-up units as required), conduits, all necessary power, and all other labor and equipment necessary to intercept the sewage flow before it reaches the point where it would interfere with his work, carry it past his work and return it to the existing sewer downstream of his work.
- B The design, installation and operation of the temporary pumping system shall be the Contractor's responsibility. The bypass system shall meet the requirements of all codes and regulatory agencies having jurisdiction.
- C The Contractor shall provide all necessary means to safely convey the sewage past the work area. The Contractor will not be permitted to stop or impede the main flows under any circumstances.
- D The Contractor shall maintain sewer flow around the work area in a manner that will not cause surcharging of sewers, damage to sewers and that will protect public and private property from damage and flooding.
- E The Contractor shall protect water resources, wetlands and other natural resources.

6.0 FIELD QUALITY CONTROL AND MAINTENANCE

6.1 Test:

- A. The Contractor shall perform leakage and pressure tests of the bypass pumping discharge piping using clean water prior to actual operation. The engineer will be given 24 hour notice prior to testing.

6.2 Inspection:

- A. Contractor shall inspect bypass pumping system every two hours to ensure that the system is working correctly.

6.3 Maintenance Service:

- A. The Contractor shall insure that the temporary pumping system is properly maintained and a responsible operator shall be on hand at all times when pumps are operating.

6.4 Extra Materials:

- A. Spare parts for pumps and piping shall be kept on site as required.
- B. Adequate hoisting equipment for each pump and accessories shall be maintained on the site.

7.0 PREPARATION:

7.1 Precautions:

- A. Contractor is responsible for locating any existing utilities in the area the Contractor selects to locate the bypass pipelines. The Contractor shall locate his bypass pipelines to minimize any disturbance to existing utilities and shall obtain approval of the pipeline locations from the City and the Engineer. All costs associated with relocating utilities and obtaining all approvals shall be paid by the Contractor.
- B. During all bypass pumping operation, the Contractor shall protect the Pumping Station and main and all local sewer lines from damage inflicted by any equipment. The Contractor shall be responsible for all physical damage to the Pumping Station and main and all local sewer lines caused by human or mechanical failure.

8.0 INSTALLATION AND REMOVAL:

- 8.1 The Contractor shall remove manhole sections or make connections to the existing sewer and construct temporary bypass pumping structures only at the access location indicated on the Drawings and as may be required to provide adequate suction conduit.
- 8.2 Plugging or blocking of sewage flows shall incorporate a primary and secondary plugging device. When plugging or blocking is no longer needed for performance and acceptance of work, it is to be removed in a manner that permits the sewage flow to slowly return to normal without surge, to prevent surcharging or causing other major disturbances downstream.
- 8.3 When working inside manhole or force main, the Contractor shall exercise caution and comply with OSHA requirements when working in the presence of sewer gases, combustible or oxygen-deficient atmospheres, and confined spaces.
- 8.4 The installation of the bypass pipelines is prohibited in all saltmarsh/wetland areas. The pipeline must be located off streets and sidewalks and on shoulders of the roads. When the bypass pipeline crosses local streets and private driveways, the contractor must place the bypass pipelines in trenches and cover with temporary pavement. Upon completion of the bypass pumping operations, and after the receipt of written permission from the Engineer, the Contractor shall remove all the piping, restore all property to pre- construction condition and restore all pavement. The Contractor is responsible for obtaining any approvals for placement of the temporary pipeline within public ways from SSCAFCA and the City.

END SECTION