

TECHNICAL SPECIFICATIONS

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SECTION 01 10 00 – SUMMARY (PERMITS)

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Permits.
 - a. At time of receipt, contractor shall abide by all conditions of project permits. Construction cannot commence until permits are secured.

1.2 PERMITS

- A. New Jersey Department of Community Affairs (NJDCA)
 1. Contractor to secure
- B. Freehold Soil Erosion and Sediment Control Certification (Permit Pending)
 1. Engineer to Secure
- C. 5G3 Construction Activity - Stormwater Discharge (Permit Pending)
 1. Engineer to Secure

END OF SECTION 01 10 00

SECTION 024116 - STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition of designated buildings.
2. Demolition of designated building foundations (sub structure).
3. Removing, storing and protecting designated items for Owner's retention.
4. Removing demolished materials.

B. Scope of Work:

1. The work under this Section consists of furnishing all labor, materials, equipment, services and incidentals required for the:
 - a. Demolition and disposal of all structures, building materials, equipment, utility systems, contents and accessories to be demolished as indicated on the Contract Drawings and as specified herein.
 - b. Salvaging, for the Owner's retention, of the Dymaxion Deployment Unit (DDU) from the roof of Building 2700 as indicated on the Contract Drawings and as specified herein.

C. The word "Demolish" (or demolition) where used in the Contract Documents shall be meant to include the removal and disposal of.

1.2 SCHEDULING

- A. Once the demolition is started, it shall be continued until completed.

1.3 SUBMITTALS

A. Submittals for Pre-Demolition Phase:

1. Qualifications for demolition firm.
2. Copy of demolition permits obtained from New Jersey Department of Community Affairs (NJCA).

B. Submittals for Demolition Phase:

1. Schedule of demolition activities indicating the following:
 - a. Describe overall demolition sequence and schedule. Include for each building, a detailed sequence of demolition work, including start and end dates for each activity and methods of demolition.
 - b. Describe the removal methods and sequence of salvageable items.

2. Proposed dust control measures.
 3. Proposed noise-control measures.
 4. Description of the type of seismic monitoring device to be used for monitoring existing adjacent buildings and structures to remain.
- C. Delegated Design Submittals: Submit signed and sealed Shop Drawings with design calculations and assumptions for bracing, shoring, and underpinning, if required based on the Contractor's selected means and methods of demolition

1.4 CLOSEOUT SUBMITTALS

- A. Record Building Documentation: Submit the following for existing building components indicated to remain.
1. Survey drawings, in AutoCAD format, signed by a professional surveyor licensed in the state of New Jersey, indicating position and top of pile elevation of piles to be cut-off and abandoned at Building 2700.

1.5 QUALITY ASSURANCE

- A. Perform Work according to the Occupational Safety and Health Administration (OSHA) Standard 29 CFR Part 1926.
- B. Conform to New Jersey Administrative Code (NJAC) for demolition of structures, safety of adjacent structures, dust control, noise control, runoff control and disposal.
- C. Conform to New Jersey Administrative Code (NJAC) for procedures when hazardous or contaminated materials are discovered.
- D. Permits: Obtain required permits from the New Jersey Department of Community Affairs (NJDCA).
- E. Maintain one copy of each document on-Site.

1.6 QUALIFICATIONS

- A. Demolition Firm: Company specializing in performing Work of this Section with minimum 10 years' documented experience.
- B. Licensed Professional:
1. Condition survey of existing adjacent buildings and structures under direct supervision of professional engineer experienced in design of this Work and licensed in State of New Jersey.
 2. Design bracing, shoring, and underpinning (if required based on the Contractor's selected means and methods of demolition) under direct supervision of professional engineer experienced in design of this Work and licensed in State of New Jersey.

1.7 EXISTING CONDITIONS

- A. The Contractor shall examine the various Contract and Reference Drawings, visit the Site, determine the extent of the Work, the extent of work affected therein, and all conditions under which he is required to perform the various operations.
- B. Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner insofar as practicable. However, variations within each Site may occur prior to the start of demolition work.
- C. There may be existing stormwater sewer, wastewater sewer, acid sewer, potable water, electric, communications, steam, fire protection and other facilities on Site that may be active and/or abandoned. It is essential that active facilities, when encountered, remain intact and in service during the proposed demolition. Consequently, the Contractor shall be responsible for the protection of active facilities and shall diligently direct all his activities toward maintaining continuous operation of the existing active facilities and minimizing operational inconvenience.
- D. Buildings indicated to be demolished will be vacated before start of Work.
- E. Owner assumes no responsibility for actual condition of buildings to be demolished.
- F. Known hazardous materials are identified on the Contract Documents. Notify the Resident Engineer upon discovery of hazardous materials not identified in the Contract Documents.
- G. Unless otherwise noted, all material, equipment, rubble, debris, and other products of the demolition shall become the property of the Contractor for his disposal off-Site in accordance with all applicable laws and ordinances at the Contractor's expense.
- H. No additional payment will be made for pumping or other difficulties encountered due to water.
- I. Maintain existing public sidewalks and roadways to greatest extent possible.

PART 2 - EXECUTION

2.1 EXAMINATION

- A. Examine existing buildings indicated to be demolished before demolition.
- B. Determine where removals may result in structural deficiency or unplanned building collapse during demolition. Coordinate demolition sequence and procedures to prevent structures from becoming unstable.
- C. Determine where demolition may affect structural integrity or weather resistance of adjacent buildings indicated to remain.
 - 1. Identify measures required to protect buildings from damage.
 - 2. Identify remedial Work including patching, repairing, bracing, and other Work required to leave buildings indicated to remain in structurally sound, weathertight, and watertight condition.

- D. Verify hazardous material abatement is complete before beginning demolition.
- E. Survey and monitor existing adjacent buildings and structures to remain.
 - 1. Any buildings and structures within a 200 ft. boundary of the buildings scheduled to be demolished are required to be surveyed and monitored by the Contractor. No separate payment will be made for the surveying and monitoring of existing adjacent buildings and structures.
 - 2. Make arrangements with building owners and occupants to survey interior and exterior of existing buildings.
 - 3. The condition survey and vibration monitoring shall include but is not limited to the following:
 - a. A thorough structural inspection of the building, walls and structures with notes and video and/or photograph recording within one (1) week prior to demolition operations. All existing cracks, defects and any other structural defects shall be carefully documented. The inspection shall be done by a professional engineer licensed in the state of New Jersey with building and structure inspection experience. A report summarizing each inspection shall be signed by the Professional Engineer and submitted to the Owner. Permission to enter and inspect the building and property shall be obtained by the contractor. Copies of all correspondence shall be submitted to the Resident Engineer. Demolition operations shall not commence until the structural inspection has been completed and the report submitted to the Resident Engineer.
 - b. The contractor shall monitor the vibration and movement in the subject area with seismic monitoring devices. One monitoring device shall be set up on the ground floor inside each building or structure. The monitoring schedule shall be as follows:
 - 1) The building shall be monitored and readings taken continuously for two (2) days prior to any demolition operation.
 - 2) The building or structure shall be continuously monitored during demolition operations on the first, third and sixth day of these operations and one day per week in completion of these operations or as directed by the Resident Engineer. Demolition operations shall be stopped by the Resident Engineer if the vibration occurrence exceeds the ambient levels or a peak velocity of 1.0 inches per second, whichever is greater. If operations are halted by the Resident Engineer, the Contractor shall alter his method of demolition operations to decrease the measured vibrations. Any changes shall be subject to the approval of the Resident Engineer.
 - c. After the demolition is complete, the Contractor shall re-inspect the buildings and structures, provide notes and videos and/or photographs than can fully describe the structural condition of the building. If any damage is observed after the demolition work is complete the Contractor will be responsible for repair.
 - d. The results and measurements taken by the seismic devices and the report, notes and videos and/or photographs of the building inspections shall become the property of the Owner.

2.2 PREPARATION

- A. Prevent movement or settlement of adjacent structures. Provide bracing and shoring, if required based on the Contractor's selected means and methods of demolition.

2.3 DEMOLITION

A. General:

1. Use of explosives is not permitted.
2. Conduct demolition to minimize interference with adjacent structures and occupancies.
3. Cease operations immediately when adjacent structures appear to be in danger. Notify Resident Engineer. Do not resume operations until directed.
4. Conduct operations with minimum interference to public or private accesses to occupied adjacent structures and/or properties. Maintain protected continuous egress and access from occupied adjacent structures and/or properties.
5. Obtain written permission from adjacent property owners when demolition equipment will traverse, infringe upon, or limit access to their property.
6. The Contractor's operations shall be confined to the limit of disturbance line as indicated on Contract Drawings.
7. Sprinkling:
 - a. Sprinkle Work with water to minimize dust.
 - b. Provide hoses and water connections required for this purpose.
8. Locate demolition equipment throughout the building and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Whenever a building is demolished, the roof and each upper story shall be taken down before the demolition of the next lower story is begun; no material shall be placed in such a manner as to overload any part of such building in the course of demolition; all steel, concrete, masonry, brick, stone, timber and structural parts of each story shall be lowered to the ground immediately upon displacement; all dry mortar, lime, brick dust, concrete dust, plaster, or other flying material shall before and during removal be dampened sufficiently to prevent it from floating or being blown into the street or on adjoining property.
10. Do not cut or remove any load-supporting or structural members until all the work to be demolished above the support members is completed.
11. No wall, chimney or other structural part shall be left in such condition that it may collapse or be toppled by wind, vibration or any other cause.
12. Break up and remove concrete and masonry in sizes that will be suitable for acceptance at recycling or disposal facilities.
13. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
14. Break up and remove concrete slabs on grade in small sizes, suitable for acceptance at recycling or disposal facilities, unless otherwise shown to remain.
15. Break up and completely remove below-grade concrete slabs, in small sizes, suitable for acceptance at recycling or disposal facilities.
16. Continuously clean up and remove demolished materials from Site. Do not allow materials to accumulate in building or on-Site. Do not allow demolished materials to accumulate or be stored on-Site for more than 14 days.
17. Do not burn or bury materials on-Site; leave Site in clean condition.
18. Do not sell demolished materials on-Site.

- B. Demolish buildings and associated ancillary structures in their entirety including building construction materials, building utility systems, equipment and all contents.

- C. Demolish below-grade construction in entirety, including slabs, foundation walls, spread footings, grade beams, vaults, trenches and interior manhole structures. Cut-off and abandoned piles at Building 2700 as indicated on Contract Drawings.
- D. Demolish concrete slabs, pads and aprons –on-grade in their entirety.
- E. Demolish retaining walls in their entirety including all footings.
- F. Salvage (remove, store and protect) designated items for Owner's retention:
 - 1. Lower the Dymaxion Deployment Unit (DDU) from the roof of Building 2700, transport DDU to a location on-Site, store and protect from damage and vandalism through the duration of the Contract. Specific on-Site storage location to be as directed by the Resident Engineer. Coordinate with the Contract Drawings for more information.
 - 2. Remove materials to be retained in manner to prevent damage; store and protect prevent damage and vandalism.
 - 3. DDU to be transported off site by Others.
- G. Backfill open pits and holes resulting from demolition.

END OF SECTION 024116

SECTION 28200 – ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 **ABATEMENT**: This section covers the abatement of potential hazards relating to materials previously determined to be asbestos-containing materials (ACMs) pursuant to applicable regulations associated with the structures described in these specifications.

1.2 **DESCRIPTION OF WORK**

A. **Work**: This section details all areas where Asbestos Abatement Work is to be performed and lists areas requiring special protection during the Asbestos Abatement Work. Furnish all labor, materials, services, training, insurance, and equipment as needed to complete removal of asbestos-containing and asbestos-contaminated materials located as indicated below. Follow all Federal, State and local ordinances, regulations and rules pertaining to asbestos, including its storage, transportation, and disposal.

1. **Work Area**: The Work area includes the following:

- The existing Former Myer Center’s Building 2700 and Building 2705 (Block 101, Lot 1) in the Borough of Tinton Falls, Monmouth County, New Jersey.

2. **Removal**: Remove the following asbestos-containing materials:

Note: sf = square feet; lf = linear feet

Building 2700 - Former Myer Center

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
<u>O&A Section 7 and Catwalk Spaces</u>			
-	Remnant mastic associated with previously removed beige 12”x12” floor tile	OA504; assumed present below new white 12”x12” “self-stick” floor tile	3,400 sf (estimated)
-	“Transite” wall panels	Wall between OA500 spaces and OA418 spaces	950 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators and above plaster ceilings not accessible from the Catwalk spaces (assumed)	400 lf (estimated)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
<i>O&A Section 6 and Catwalk Spaces</i>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	OA335	75 sf
		Substation 7	792 sf
		MR OA400	700 sf
		Women's Restroom; below new 12"x12" floor tile	120 sf
		Men's Restroom; below new 12"x12" floor tile	120 sf
-	Grey acoustical spray-applied ceiling (spray-on insulation)	OA 400 and OA 404 Office spaces	2,100 sf (estimated)
H-16	Black asphaltic mastic associated with white marbled 12"x12" floor tile	Rear OA 404 FEMA Offices; below raised flooring system	5,100 sf (estimated)
		OA 400 Office spaces (some below carpeting)	2,100 sf (estimated)
-	"Transite" wall panels	OA 400 and OA 404 Office spaces	1,300 sf (estimated)
-	2'x2' "transite" ceiling tiles	OA 404 Office spaces	1,000 sf
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Various O&A Section 6 spaces, Cafeteria Compressor Room and Stairwell 6	35 lf (estimated)
		Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators and above plaster ceilings not accessible from the Catwalk spaces (assumed)	750 lf (estimated)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
<u>O&A Section 5 and Catwalk Spaces</u>			
-	Window glazing compound	Boiler Room; associated with all metal exterior window assemblies	Not Quantified (estimated to be 160 sf)
-	Interior boiler refractory, packing, gasketing and/or insulation	Boiler Room; associated with two large boiler units (assumed)	20 cubic yards (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	O&A Section 5, Stairwell 13 Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators and above plaster ceilings not accessible from the Catwalk spaces (assumed)	35 lf (estimated) 250 lf (estimated)
<u>First Floor Mechanical Rooms 13</u>			
-	Duct insulation	MR13	100 sf
-	Pipe insulation	MR13	40 lf
-	Flex Connector (duct coupler)	MR13	5 sf (estimated)
<u>First Floor Section 1, Mezzanine Spaces and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	IAB127; below raised flooring system	1,700 sf
		Navy Print Plant; below non-ACM 12"x12" floor tile	2,200 sf
		IB113; below non-ACM 12"x12" floor tile	2,800 sf
		IB112 to IB106; below ACM beige 12"x12" floor tile and associated back asphaltic mastic	3,200 sf
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic (con't)	IB107 Office	320 sf

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	IB123	800 sf
-	"Transite" wall panels	IB107 adjacent to MR11	600 sf
-	Pipe elbows (fittings associated with fibrous glass pipe insulation)	MR11	6 lf
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Mezzanine above IB111 to IB107 (majority below carpet)	3,200 sf
		Mezzanine above IB110 to IB112 (majority below carpet)	2,600 sf
		Mezzanine; Office spaces off Hallway outside Auditorium	800 sf (estimated)
		Mezzanine; Hallway outside Auditorium and Auditorium (majority below carpet)	6,000 sf (estimated)
-	Mastic associated with 1'x1' flush-mounted ceiling tile	Mezzanine above IB110 to IB112	2,000 sf (estimated)
-	"Transite" wall panels	Mezzanine above IB111 to IB107 and IB112 to IB108 and other spaces	1,000 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	250 lf (estimated)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
<i>First Floor Section 2, Mezzanine Spaces and Catwalk Spaces</i>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout a majority of the spaces (present below carpeting, ACM and non-ACM 12"x12" floor tile and/or raised flooring systems)	20,000 sf (estimated)
-	"Transite" wall panels	Throughout various spaces	7,100 sf (estimated)
-	Pipe insulation	IB138	8 lf
-	Duct insulation	IB138	1,500 sf (estimated; concealed)
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	Women's and Men's Room Alcoves	300 sf (estimated)
-	Pipe insulation	MR12	10 lf
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Mezzanine above IB141 and IB138 spaces (exposed or below carpeting or ACM beige with red stripe 12"x12" "self-stick" floor tile)	6,500 sf (estimated)
		Mezzanine above IB135 spaces (exposed or below carpeting)	4,300 sf
-	Insulation	Mezzanine	8 sf
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	350 lf (estimated; some present as debris)
-	Mastic associated with duct work	Catwalk spaces	800 sf (estimated)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
<i>First Floor Section 3, Mezzanine Spaces and Catwalk Spaces</i>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	IB214, IB212, IB210, IB211, IB207, IB205, IB203, IB204 and Small Auditorium (majority below ACM beige with red stripe 12"x12" "self-stick" floor tile, two layers of non-ACM floor tile and/or carpeting)	8,500 sf (estimated)
-		Women's and Men's Restroom Alcoves (below non-ACM 12"x12" floor tile)	350 sf (estimated)
-		IB208/IB206 (below raised flooring system)	500 sf (estimated)
-	Acoustical wall tile	IB204	200 sf
H-25	Beige with red stripe 12"x12" "self-stick" floor tile	IB213	600 sf
		IB302/IB216 (present below carpeting)	2,700 sf
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	Room adjacent to IB211	1,160 sf
		IB208/IB206 (present below rubber flooring)	1,500 sf (estimated)
-	Pipe insulation	MR14	10 lf
-	Various colored and styled 9"x9" floor tile and associated black asphaltic	Mezzanine above IB212 (present below carpeting)	1,200 sf
-	"Transite" wall panels	Mezzanine above IB212	1,088 sf
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	250 lf (estimated; some present as debris)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
<u>First Floor Section 4, Mezzanine Spaces and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Room adjacent to Stairwell 4, IB307, IB312 to IB316, IB318 and Front Office Area (half below ACM beige with red stripe 12"x12" "self-stick" floor tile)	6,500 sf (estimated)
H-25	Beige with red stripe 12"x12" "self-stick" floor tile	IB308/IB310 (present below carpeting)	5,500 sf
-	"Transite" wall panels	Column at IB114 and near Men's Restroom/Shower	425 sf
-	Pipe insulation	Near IB318 and IB313	7 lf
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Mezzanine above IB318 (present under carpeting)	2,500 sf (estimated)
-	"Transite" wall panels	Mezzanine above IB318	610 sf
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	250 lf (estimated; some present as debris)
-	Duct insulation	Catwalk spaces	2,000 sf
<u>First Floor Section 5, Mezzanine Spaces and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Upper Boiler Room Office and Hallway and Loading Dock (patches)	500 sf (estimated)
-	Panel Insulation	First Floor; Section 5	80 sf
-	Pipe insulation	Incinerator Room	5 lf

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
-	“Transite” wall panels	Hallway walls along IB324 and across from the Boiler Room spaces and Mezzanine spaces above IB324	10,000 sf (estimated)
H-24	Black asphaltic mastic associated with beige 12”x12” floor tile	IB324 and Office spaces across from Boiler Room spaces (present below carpeting)	7,200 sf (estimated)
		Custodial Office	200 sf
		Office off Main Entrance	560 sf
-	Various colored and styled 9”x9” floor tile and associated black asphaltic mastic	Mezzanine above IB324 (present below carpeting and new 12”x12” blue “self-stick” floor tile)	3,600 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	250 lf (estimated; some present as debris)
<i>First Floor Section 6, Mezzanine Spaces and Catwalk Spaces</i>			
-	Various colored and styled 9”x9” floor tile and associated black asphaltic mastic	IB401/B403/IB405/IB409 and Women’s and Men’s Restroom Alcoves (present below carpeting, beige with red stripe 12”x12” “self-stick” floor tile and/or beige 12”x12” floor tile)	3,800 sf (estimated)
-	“Transite” wall panels and piping	Hallway by IB405 and in stairwell	520 sf (estimated)
H-24	Black asphaltic mastic associated with beige 12”x12” floor tile	IB400/IB406 (present below raised flooring system)	7,000 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	150 lf (estimated; some present as debris)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
<u>First Floor Section 7, Mezzanine Spaces and Catwalk Spaces</u>			
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	IB504 (present below carpeting, beige with red stripe 12"x12" "self-stick" floor tile and exposed)	1,500 sf (estimated)
H-25	Beige with red stripe 12"x12" "self-stick" floor tile	IB500 and IB505 (present below carpeting, raised flooring and/or beige 12"x12" floor tile)	5,300 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	100 lf (estimated; some present as debris)
<u>Second Floor Section 1 and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout Outer Office spaces and Central Core spaces (present below carpeting, raised flooring systems and/or 12"x12" floor tile and exposed)	15,100 sf (estimated)
-	"Transite" wall panels	2D108	90 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	300 lf (estimated; some present as debris)
<u>Second Floor Section 2 and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout Outer Office spaces and Central Core spaces (present below carpeting, white speckled 12"x12" and/or beige with red stripe 12"x12" floor tile and exposed)	13,900 sf (estimated)
-	"Transite" wall panels	Near 2C129	425 sf (estimated)
-	"Transite" table tops and fume hoods	2D200/2C203/2C143/2C201	1,200 sf (estimated)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	275 lf (estimated; some present as debris)
<u>Second Floor Section 3 and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout various Outer Office spaces, Women's and Men's Restroom Alcoves, Custodial Room and 2C205 (present below carpeting, beige with red stripe 12"x12" floor tile and exposed)	8,100 sf (estimated)
H-43, H-44	Tan 12"x12" with white and brown streaks floor tile and associated black asphaltic mastic	2D206	400 sf
-	"Transite" table tops and fume hoods	2C205/2C211/2C213A	1,500 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	280 lf (estimated; some present as debris)
<u>Second Floor Section 4 and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout various Outer Office spaces and Central Core spaces (present below carpeting, raised flooring systems, beige with red stripe 12"x12" floor tile and exposed)	10,700 sf (estimated)
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	2D313A/2D313/2D311 and 2D309 (present below carpeting and exposed)	2,000 sf (estimated)
H-25	Beige with red stripe 12"x12" "self-stick" floor tile	2C312/2C310A and 2D304 (present below carpeting and exposed)	1,500 sf (estimated)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
-	“Transite” panels, table tops and fume hoods	2C311/2C313A/2D310 and 2D308	450 sf (estimated)
		2C307/2D306	800 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	100 lf (estimated; some present as debris)
<u>Second Floor Section 5 and Catwalk Spaces</u>			
-	Various colored and styled 9”x9” floor tile and associated black asphaltic mastic	Throughout Outer Office spaces and Central Core spaces (present below carpeting, raised flooring systems, beige with red stripe 12”x12” floor tile and exposed)	12,300 sf (estimated)
-	“Transite” panels	2D324	120 sf (estimated)
<u>Second Floor Section 6 and Catwalk Spaces</u>			
-	Various colored and styled 9”x9” floor tile and associated black asphaltic mastic	Throughout various Outer Office spaces, Central Core spaces and Women’s and Men’s Restroom Alcoves (present below carpeting, raised flooring systems, 12”x12” floor tile and exposed)	7,900 sf (estimated)
-	“Transite” panels	2C411 and D410A	225 sf (estimated)
-	“Transite” piping (large diameter)	MR 24	15 lf
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	300 lf (estimated; some present as debris)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
<i>Second Floor Section 7 and Catwalk Spaces</i>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout various Outer Office spaces, Central Core spaces and Women's and Men's Restroom Alcoves (present below carpeting, raised flooring systems, 12"x12" floor tile and exposed)	5,800 sf (estimated)
-	"Transite" panels	2C415/2C413	235 sf (estimated)
-	"Transite" piping (large diameter)	MR 25	45 lf
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	Elevator Lobby	250 sf (estimated)
		2D504/2D505 (some assumed present below carpeting)	700 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	320 lf (estimated; some present as debris)
-	Mastic associated with cork duct insulation	Catwalk spaces	30 sf (estimated)
<i>Third Floor Section 1 and Catwalk Spaces</i>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout various Outer Office spaces, some Central Core spaces and Women's and Men's Restroom Alcoves (present below carpeting, raised flooring systems, 12"x12" floor tile and exposed)	11,900 sf (estimated)
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	Elevator Lobby	250 sf (estimated)
-	Grey acoustical spray-applied ceiling (spray-on insulation)	3D114 and 3C119 Closets	85 sf (estimated; present as debris)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	300 lf (estimated; some present as debris)
<i>Third Floor Section 2 and Catwalk Spaces</i>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout Outer Office spaces, majority of Central Core spaces and Women's and Men's Restroom Alcoves (present below carpeting, raised flooring systems, 12"x12" floor tile and exposed)	14,555 sf (estimated)
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	3D202/3D104 and 3C141 (exposed and below raised flooring systems)	1,000 sf (estimated)
H-25	Beige with red stripe 12"x12" "self-stick" floor tile	3D200	650 sf (estimated)
-	"Transite" panels	3C201 and 3D140	625 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	300 lf (estimated; some present as debris)
<i>Third Floor Section 3 and Catwalk Spaces</i>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout majority of Outer Office spaces, majority of Central Core spaces and Women's and Men's Restroom Alcoves (present below carpeting, raised flooring systems, 12"x12" floor tile and exposed)	11,285 sf (estimated)
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	3D207 (present under carpeting)	525 sf (estimated)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
-	“Transite” panels	3D208 and adjacent space	500 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	300 lf (estimated; some present as debris)
<i>Third Floor Section 4 and Catwalk Spaces</i>			
-	Various colored and styled 9”x9” floor tile and associated black asphaltic mastic	Throughout Outer Office spaces, Central Core space and Women’s and Men’s Restroom Alcoves (present below carpeting, raised flooring systems, 12”x12” floor tile and exposed)	17,600 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	50 lf (estimated)
<i>Third Floor Section 5 and Catwalk Spaces</i>			
-	Various colored and styled 9”x9” floor tile and associated black asphaltic mastic	Throughout Outer Office spaces, Central Core spaces (present below carpeting, raised flooring systems, 12”x12” floor tile and exposed)	11,400 sf (estimated)
H-25	Beige with red stripe 12”x12” “self-stick” floor tile	3D323A/3D325/3D327 and 3D333	1,600 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	200 lf (estimated; some present as debris)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
<u>Third Floor Section 6 and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout majority of Outer Office spaces, majority of Central Core spaces and Women's and Men's Restroom Alcoves (present below carpeting, raised flooring systems, 12"x12" floor tile and exposed)	8,000 sf (estimated)
-	"Transite" piping (large diameter)	MR 34	15 lf
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	300 lf (estimated; some present as debris)
<u>Third Floor Section 7 and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout majority of Outer Office spaces, majority of Central Core spaces and Women's and Men's Restroom Alcoves (present below carpeting, raised flooring systems, 12"x12" floor tile and exposed)	7,100 sf (estimated)
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	3C418/3C502/3C504/3D411 /3D411A and 3D503 (present below carpeting)	1,550 sf (estimated)
		Elevator Lobby	250 sf
H-25	Beige with red stripe 12"x12" "self-stick" floor tile	3D415 (present below carpeting)	650 sf (estimated)
-	"Transite" piping (large diameter)	MR 35	45 lf

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	300 lf (estimated; some present as debris)
<u>Fourth Floor Section 1 and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout several Outer Office spaces (present below carpeting and exposed)	3,050 sf (estimated)
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	Elevator Lobby	250 sf
H-25	Beige with red stripe 12"x12" "self-stick" floor tile	4D115/4D113A/4D109A/4D107/4D105/4D108A/4D108/4C112/4C112A/4C114/4C128 Kitchenette and Women's Restroom Alcove (present below carpeting, 12"x12" floor tile and exposed)	2,500 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	300 lf (estimated; some present as debris)
<u>Fourth Floor Section 2 and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout majority of Outer Office spaces, Women's and Men's Restroom Alcoves (present below carpeting, 12"x12" floor tile and exposed)	4,750 sf (estimated)
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	4D201/4D139A/4D139/4D132 Closet (present below carpeting and exposed)	1,800 sf (estimated)
H-25	Beige with red stripe 12"x12" "self-stick" floor tile	Men's Restroom Alcove and 4D131/4D129 (present below carpeting)	580 sf (estimated)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
H-51	Green and white linoleum flooring	Central Core 4C143/4C141/4D140	2,100 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	300 lf (estimated; some present as debris)
<u>Fourth Floor Section 3 and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout various Outer Office spaces, Women's and Men's Restroom Alcoves and Custodial Room (present below carpeting, 12"x12" floor tile and exposed)	1,700 sf (estimated)
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	4D205/4D203/4C205 and 4C304 (present below carpeting and exposed)	3,200 sf (estimated)
H-25	Beige with red stripe 12"x12" "self-stick" floor tile	Men's Restroom Alcove	25 sf
-	Duct insulation/patching material	MR 43	1,500 sf (estimated)
-	Pipe insulation	MR 43	10 lf
-	Electrical wrapping	MR 43	2 lf
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	280 lf (estimated; some present as debris)
<u>Fourth Floor Section 4 and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout various Outer Office spaces and 4C321/4D320A (present below carpeting, 12"x12" floor tile and exposed)	6,000 sf (estimated)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	4D305 (present below carpeting and exposed)	220 sf (estimated)
H-25	Beige with red stripe 12"x12" "self-stick" floor tile	4D313/4D311/4D309/4D307/4C306 and majority of Central Core spaces (present below carpeting and exposed)	8,850 sf (estimated)
-	Mastic on cork insulation	Catwalk spaces	300 sf (estimated; not quantified)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	100 lf (estimated)
<u>Fourth Floor Section 5 and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout various Outer Office spaces and all Central Core spaces (present below carpeting, raised flooring, 12"x12" floor tile and exposed)	8,950 sf (estimated)
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	4D324	100 sf (estimated)
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	100 lf (estimated)
<u>Fourth Floor Section 6 and Catwalk Spaces</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout majority of Outer Office spaces, majority of Central Core spaces, Women's and Men's Restroom Alcoves and Custodial Room (present below carpeting, raised flooring systems, 12"x12" floor tile and exposed)	11,000 sf (estimated)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
H-25	Beige with red stripe 12"x12" "self-stick" floor tile	4D337/4D401 (present below carpeting)	950 sf
-	Flex connector (duct coupler)	MR 44	10 lf (estimated)
-	Tank insulation	MR 44	15 sf (estimated)
-	"Transite" piping (large diameter)	MR 44	15 lf
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	280 lf (estimated; some present as debris)
<i>Fourth Floor Section 7 and Catwalk Spaces</i>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Throughout majority of Outer Office spaces, majority of Central Core spaces, Women's and Men's Restroom Alcoves (present below carpeting, raised flooring systems, 12"x12" floor tile and exposed)	9,000 sf (estimated)
H-24	Black asphaltic mastic associated with beige 12"x12" floor tile	4D502/4D501 and Safe (assumed) Elevator Lobby	1,000 sf (estimated) 250 sf
-	"Transite" piping (large diameter)	MR 45	45 lf
H-42	Brown layered wafer, grey corrugated aircell and/or white matrix block pipe insulation and associated pipe fitting insulation	Catwalk spaces and potentially concealed in pipe chase spaces servicing Restrooms, Radiators and Unit Ventilators (assumed)	290 lf (estimated; some present as debris)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
<u>Stairwells and Stairwell Landings</u>			
-	Various colored and styled 9"x9" floor tile and associated black asphaltic mastic	Stairwell #2; majority of landings from Roof landing to First Floor landing	1,200 sf (estimated)
		Stairwell #5; Roof landing	120 sf (estimated)
		Stairwell #6; majority of landings from Roof landing to O&A level	710 sf (estimated)
		Stairwell #7; majority of landings from Roof landing to O&A level	710 sf (estimated)
		Stairwell #7; majority of landings from Roof landing to O&A level	710 sf (estimated)
		Stairwell #10; landing between First Floor and O&A level	110 sf (estimated)
		Stairwell #11; landing to outside on First Floor and landing between First Floor and O&A level	230 sf (estimated)
		Stairwell #12; landing between First Floor and O&A level	110 sf (estimated)
<u>Main Upper Rooftop Level Exterior Siding Elements</u>			
H-54	Grey exterior metal wall panel caulking compound	Associated with Exterior metal wall panels over entire Building; associated with all perimeter seams (O&A Level to Roof Level)	Not Quantified (associated with all exterior metal panels)
H-58	Black asphaltic coated fibrous glass duct insulation	Main Roof Level; Section 7	550 sf
		Main Roof Level; Section 6	550 sf
		Main Roof Level; Section 5	500 sf
		Main Roof Level; Section 2	850 sf (estimated)

HOMOGENEOUS ID #	TYPE OF ACM/PACM	LOCATION	APPROXIMATE AMOUNT
H-59	Grey cementitious “transite” wall panel	Main Roof Level; Section 7	400 sf
		Main Roof Level; Section 6	400 sf
		Main Roof Level; Section 5	250 sf
		Main Roof Level; Section 3	500 sf
		Main Roof Level; Section 1	550 sf
H-61, H62, H63A	Black asphaltic and/or rubberized roofing flashing/sealant compound and vent pipe sealant compound (all applications and thicknesses)	Main Roof Level; Section 1-7 and all Elevator and Stairwell Roof Levels associated with all perimeters, penetrations and parapets (below newer EPDM roofing membrane)	12,500 sf (estimated)
		Auditorium Roof Level; associated with all perimeters, penetrations and parapets (below newer EPDM roofing membrane)	1,200 sf (estimated)
H-63	Black asphaltic flashing/sealant compound on yellow painted ductwork (Main Roof)	Main Roof Level; Section 4	20 sf (estimated)
-	Window glazing compound (PACM)	Main Roof Level; selective Elevator and Stairwell window assemblies	Not Quantified (estimated to be associated with 6 window assemblies)

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HOMOGENEOUS ID #	TYPE OF ACM	LOCATION	APPROXIMATE AMOUNT
H-01, H-02	Beige marbled 12”x12” floor tile and associated black asphaltic mastic	First Floor; Various Main Hallways (present below carpeting)	3,400 sf (estimated)
H-10	Tan marbled 12”x12” “self-stick” floor tile	First Floor; Room 603 (present below former raised flooring system)	3,600 sf

HOMOGENEOUS ID #	TYPE OF ACM	LOCATION	APPROXIMATE AMOUNT
H-12	Black asphaltic roofing tar below EPDM roofing system	Main Roofing Level; below EPDM Rubberized and Foam Roofing System	40,000 sf (estimated)
		Front Lower Roofing Level; below EPDM Rubberized and Foam Roofing System	1,000 sf (estimated)
H-15	Black asphaltic roofing flashing/sealant compound (Upper Roof)	Upper Roof Level; associated with all perimeters, penetrations and parapets	450 sf (estimated)

3. The "Approximate Amount(s)" of ACM listed in Paragraph 1.2.A.(2) above are merely to provide a general and relative frame of reference. No attempt has been made to quantify the exact amount of ACM in the above mentioned locations. The Contractor is expected to have acquainted itself with the spaces involved, and to have investigated the location and amount of all identified materials. The Approximate Amounts shall not in any way be construed or applied so as to limit the Contractor's obligation to remove and dispose of, or otherwise treat as specified, all ACM so identified, nor to form the basis for any change of the Contract Sum or Time.
4. It is the Contractor's sole responsibility to arrange for the Asbestos Abatement Work scope to be completed in an expeditious and cost effective manner. A critical consideration is the definition of the work to be sufficient to allow for all Asbestos Abatement Work for a given work area or phase to be completed as part of one mobilization. The Owner shall not be held responsible for delays and duplicative costs associated with the possible eventuality that the Contractor needs to arrange for some Asbestos Abatement Work to be completed at a time following the initial Asbestos Abatement Work due to the Contractor's failure to properly define and execute the Asbestos Abatement Work as part of that first mobilization. Rather, the Contractor shall bear the costs incurred by the Owner for the Owner to arrange for its consultants to participate in arrangement and monitoring of Asbestos Abatement Work conducted to remedy improper initial definition of the Asbestos Abatement Work Scope.
5. The contractor shall be required to remove and dispose of all applications and thicknesses of suspect asbestos-containing roofing flashing/sealant compounds associated with the roofing systems at the subject buildings. The amounts are estimated above. The Contractor shall be required to remove and dispose of all suspect asbestos-containing roofing flashing/sealant compound (or any other underlayment materials/applications) regardless if the total amount exceeds the above estimates at no additional cost to the Owner.

B. Sequencing/Scheduling

1. Complete all Asbestos Abatement Work within the timeframe of the overall project as defined in the Contract Documents.

C. Occupancy

As the subject buildings are scheduled for complete demolition following this Asbestos Abatement Work with no intervening building occupancy, this project is not within the regulatory scope of the New Jersey Asbestos Hazard Abatement Subcode (N.J.A.C. 5:23-8, the "Subcode).

1.3 DOCUMENTS

The current issue of each document incorporated by reference herein shall govern. Where conflict among requirements or with the specification exists, the more stringent requirements shall apply.

A. OSHA regulations Provide special attention the following:

1. CFR 1910 (general industry).
2. CFR 1910.134 (respiratory protection)
3. CFR 1910.141 (sanitation)
4. CFR 1910.300-399 (electrical)
5. CFR 1910.1001 (asbestos)
6. CFR 1910.1200 (hard communication)
7. CFR 1926 (construction safety)
8. CFR 1926.52 (noise)
9. CFR 1926.62 (lead)
10. CFR 1926.1101 (asbestos)
11. CFR 1926.59 (hazard communication)
12. CFR 1926.40-449 (electrical)
13. CFR 1926.450-452 (ladders and scaffolding)

B. EPA regulations Provide special attention to the following:

1. NESHAP Asbestos National Emission Standards for Hazardous Air Pollutants. 40 CFR 61, Subparts A (General Provisions, Sections 01-10) and M (Asbestos, Sections 140-157).

C. DOT regulations Provide special attention to the Hazardous Materials Regulations, 49 CFR 171-180, in particular:

1. CFR 171.14(b)(4) (placarding)
2. CFR 172.300-308, 324 (marking)
3. CFR 174.400, 466 (labeling)
4. CFR 172.500, 504, 560 (placarding)

D. Other Standards

1. American National Standards Institute
 - a. ANSI Standard Z9.2 Fundamentals Governing the Design and Operation of Local Exhaust Systems.
 - b. ANSI Standard A40.8 National Plumbing Code.
2. National Fire Protection Association

3. NFPA 70 National Electrical Code
4. NFPA 70E Standard for Electrical Safety Requirements for Employee Workplaces.

E. New Jersey Regulations Provide special attention to the following:

1. N.J.A.C. 12:120 and N.J.A.C. 8:60 (licensing)
2. N.J.A.C. 7:26-1 et.seq. (waste transport)

1.4 DEFINITIONS

1. The definitions utilized in this Section of these Specifications are verbatim with those of the New Jersey Asbestos Hazard Abatement Subcode of the New Jersey Uniform Construction Code, otherwise referred to as "Subchapter 8" or the "Subcode" (N.J.A.C. 5:23-8). Note: The Subcode is not applicable to this work. The Subcode is referenced here for use of its definitions and terms, and later for certain sections of the Subcode adopted by specification.

1.5 SUBMITTALS - Approval by the Owner of the following submittals is required before initiation of any work of this section.

- A. Work schedule, identifying firm start and end dates, the hours to be worked on a daily basis, and the Contractor's plans for complete the Work, including:
 1. Sequencing - Sequencing of Asbestos Abatement Work.
 2. Shifts - Length and projected times of day of work shifts.
 3. Interfacing - Interface of trades involved in the work.
 4. Special procedures - A detailed description of any proposed methods of special asbestos abatement procedures, such as glovebag work, mechanical flooring removal, etc., where used. Submit manufacturer's technical specifications and product description literature for the methods and equipment used.
- B. Copies of all notifications as required by these Specifications including identification of the Contractor's waste hauler, the hauler's NJDEP identification number, and the intended disposal site of the contaminated wastes, and all applicable permits.
- C. Copies of the Contractor's New Jersey Asbestos "A" license and respiratory protection program.
- D. The name of the testing laboratory providing the Contractor's OSHA compliance monitoring.
- E. The name and qualifications of the individual who will act as the project supervisor during the asbestos abatement portion of this Project.
- F. Information, including copies of applicable certificates and licenses from training agencies and/or manufacturers, concerning the qualifications of the Contractor, and Subcontractor, either's personnel, relative to their ability to execute the electrical, plumbing, and mechanical installation or dismantlement directly specified or otherwise necessary to complete the specified Work.
- G. Material Safety Data sheets for all hazardous chemicals to be used on the Project.

1.6 PERFORMANCE REQUIREMENTS

A. Project/site conditions

1. As the subject buildings are scheduled for demolition, the Contractor shall not be held responsible for cosmetic damage to the buildings that may be caused by the Asbestos Abatement Work that is of no consequence to later use of the site. The Contractor shall be held responsible for any damage or loss of value to the subject site, including damage to adjacent structures and utilities due to its activities. Further, the Contractor shall be responsible for correction of any unsafe conditions caused at the site, or any surrounding areas, by its activities.
2. The Contractor shall accept the site and the buildings "as is", and shall be responsible for (i) all dismantlement and limited demolition necessary to access the ACM as well as the disposal or other handling of any other items stored in the building to the extent necessary to complete the Work specified, and (ii) and any all activities related to site safety, including all safety procedures relative to establishment of safe interior work area enclosures as well as all safety procedures related to the exterior Work.

B. Utilities

1. Be aware that active electrical service may not exist at the site at the time of abatement start. Provide electrical service at the time of abatement start as necessary to complete the Work. The contractor shall provide for on-site electrical generators or temporary utility hook-up. Also, provide electrical service sufficient for the monitoring firm to provide clearance air sampling (approximately 40 amp service distributed amongst at least 3 circuits).
2. Provide water supply as necessary to complete the Work specified. Be aware that active water service may not exist at the site.

PART 2 - PRODUCTS

2.1 PRODUCTS - GENERAL

- A. Delivery - Deliver all materials in the original packages, containers, or bundles, bearing the name of the manufacturer, the brand name and any Material Safety Data Sheets which pertain to the materials.
- B. Storage - Store all materials subject to damage off the ground, away from wet or damp surfaces, and under cover sufficient to prevent damage or contamination.
- C. Protection - Damaged or deteriorating materials shall not be used and shall be removed from the premises. Materials that become contaminated with asbestos shall be disposed of in accordance with applicable regulations.
- D. Owner's items - No materials, equipment or tools belonging to the Owner shall be used by the Contractor, except in case of an emergency and upon explicit authorization by the Owner.

2.2 MATERIALS

- A. All materials utilized on this Project must meet the requirements of the Subcode as adopted by Specification.

- B. For construction of any work area enclosures, and installation of any materials that otherwise be maintained in-place for at least one workshift, utilize solely materials (e.g., polyethylene sheeting, lumber, etc.) rated to be fire retardant, as tested by ASTM standard E-84. Utilize only the polyethylene sheeting shall conform to the requirements set forth by the National Fire Protection Association Standard 701, Small Scale Fire Test for Flame Resistant Textiles and Films.

2.3 TOOLS AND EQUIPMENT

- A. All tools and equipment utilized on this Project must meet the requirements of the Subcode.

PART 3 - EXECUTION

3.1 WORK AREA PREPARATION

- A. Protection - Provide for adequate lighting during all phases of the set-up, abatement, clearance and following the work.
- B. Signage - Post adequate warning signs denoting the potential danger of airborne asbestos at designated entrances to work areas including, as a minimum, those described at 29 CFR 1926.1101, and State occupational safety and health and fire safety regulations (where applicable), and shall prevent access to posted areas by unauthorized or inadequately protected persons.
- C. Fire equipment - Maintain adequate portable fire extinguisher equipment within the work area meeting at least the requirements of 29 CFR 1910.157 and State occupational safety and health regulations and fire safety regulations.
- D. Contaminated surfaces - Clean surfaces of contaminated containers and equipment by wet sponging and/or HEPA vacuuming before moving them to uncontaminated areas.

3.2 WORK AREA PROCEDURES: GENERAL

- A. Complete Asbestos Abatement Work utilizing the following methods specified for each location/type of material:
 - 1. INTERIOR BUILDING ASBESTOS ABATEMENT REMOVAL WORK: Complete the Interior Building Asbestos Abatement Removal Work within the subject building structures in conjunction with the construction of negative pressure enclosures (NPEs), established and maintained in accordance with the OSHA Asbestos Construction Standard 29 CFR 1926.1101 and these Specifications.
 - 2. INTERIOR BUILDING ASBESTOS ABATEMENT REMOVAL WORK - PIPE INSULATION AND PIPE FITTING INSULATION REMOVAL NOT INCORORATED INTO AN NPE: At the Contractor's option, pipe insulation and pipe fitting insulation not incorporated into an NPE may be removed utilizing the glovebag removal method in accordance with N.J.A.C. 5:23-8.14 "Limited Containment Removal" as adopted by Specification.
 - 3. EXTERIOR BUILDING ASBESTOS ABATEMENT REMOVAL WORK: Complete the Exterior Building Asbestos Abatement Removal Work from the exterior of subject building structures utilizing non-friable methods pursuant to OSHA 29 CFR 1926.1101 and these specifications, with no specific work area enclosures specified.

3.3 BUILDING INTERIOR - NEGATIVE PRESSURE ENCLOSURE (NPE)

- A. Establish a decontamination unit immediately adjacent to each work area and within the subject building structures.
- B. Install the electrical distribution panel within or adjacent to the decontamination unit, with suitable security measures. The electrical installation scheme may be subject to the Owner's prior approval, and all electrical equipment installed may be subject to the Owner's prior review and approval.
- C. Prepare all windows and doorways with two layers of independently affixed polyethylene sheeting.
- D. Critical barriers shall only need to be established over interior equipment and other surfaces that the Contractor does not desire to clean and encapsulate as work area surface.
- E. Install sufficient negative air filtration units to establish four air-changes per hour and OSHA-required negative air pressure (at 0.02 W.C.) within each work area.
- F. Perform demolition of any and all materials, as necessary, to access any concealed asbestos-containing materials.
- G. For each work area enclosure in the subject building structures: As part of work area preparations, expose each concealed pipeline along its entire length by removing concrete masonry unit (CMU), concrete and/or sheetrock/plaster walls and/or ceiling sheetrock/plaster, ceiling tiles and other materials as necessary to access and view the entire length of each pipe line, and also as necessary to access and remove all asbestos-containing insulation identified.
- H. Cut any carpeting concealing asbestos-containing floor tiles into manageable sections and remove carpeting using care to limit any breakage or delamination of the floor tile from the concrete and/or vermiculate substrate. If any tiles are adhered to any carpeting, then that carpeting shall be containerized properly and disposed of as asbestos-containing waste.
- I. Utilize a commercially-available low-odor solvent to remove any asbestos-containing floor tile mastic adherent to any concrete decking.
- J. Following the establishment of appropriate negative air and work area preparation, the Contractor, may begin the removal of the asbestos-containing materials within each NPE.
- K. Upon completion of removal; complete cleaning, encapsulation, etc., in accordance with OSHA Asbestos Construction Standard 29 CFR 1926.1101 and the Subcode as adopted by Specification.

3.4 BUILDING INTERIOR – GLOVEBAG REMOVAL AT THE CONTRACTOR'S OPTION

- A. Provide the following preparatory procedures prior to undertaking the glovebag removal in any specific work area not incorporated into an NPE:
- B. Install local enclosures a minimum of five feet from the pipe insulation to be removed. Construct enclosure of a minimum of 1 layer of 6 mil polyethylene sheeting and extend from the floor to the ceiling, fitted with negative pressure in each enclosure during removal with appropriately sized filtration units.

- C. For a given work area, local enclosures shall not be necessary if the Contractor wishes to clean the entire room or space after removal in that area. In this instance, install triple-flapped doors on the entrance doors, normal full enclosure critical barriers shall be erected, and appropriate filtration units necessary to establish negative pressure in the work area.
- D. Provide a dedicated shower facility at the Project site for daily use by workers. Decontamination units utilized for NPE's is sufficient for this use. The shower shall be of sufficient size, equipped with hot and cold water, soap, and towels so that personnel can properly shower.
- E. Establish and maintain negative pressure at 0.02 inches W.C. for each tent enclosure established on this project.

3.5 BUILDING EXTERIOR ASBESTOS ABATEMENT WORK

- A. Post OSHA approved asbestos hazard warning signs at the perimeter of the abatement areas. Control access into the secured area to properly trained and protected personnel only.
- B. Establish and maintain a facility for showering and changing clothes at the abatement locations so that workers can shower after performing asbestos related Work. Maintain the shower of sufficient size, equipped with hot and cold water, soap, and towels so that personnel can properly shower.
- C. Remove the asbestos-containing materials utilizing two person teams. Continually mist the materials with amended water during removal.
- D. At its option, the Contractor may arrange for any masonry and/or metal structures/panels exhibiting asphaltic asbestos-containing material to be mechanically removed and lowered to the ground prior to separation of the asbestos-containing waste. Where flashing/sealant and/or caulking/glazing compounds are applied and persistent to substrate, complete full removal of all asphaltic residue by removing and disposing of that portion of the substrate exhibiting the residue as asbestos-containing waste at no additional cost to the Owner.
- E. Promptly containerize debris. Place material in two independently sealed six mil polyethylene bags with OSHA approved warning labels.
- F. Containers shall be lowered to the ground by appropriate methods subject to the approval of the Owner's representative. Do not drop, throw, or otherwise handle containers in such a manner as to jeopardize their integrity.
- G. Should the Contractor maintain that the landfill accepting the asbestos waste would accept it in containerization other than the doubled polyethylene bags, the Contractor must provide confirmable documentation in support of the claim to the Owner. Regardless of whether or not the Owner may accept a containerization scheme differing from that described here, the Contractor shall not be allowed to pass loose asbestos-containing waste off the roofing levels.

3.6 AIR MONITORING - EXTENSION OF SUBCODE REQUIREMENTS

- A. These Specifications adopt the progress air sampling requirements of the Subcode (N.J.A.C. 5:23-8.21 et.seq.) for use by the Owner at its discretion during the course of the Work specified for each building structure's interior.

1. The interior removal work areas shall be subject to Subcode progress air sampling utilizing Phase Contrast Microscopy (PCM) at the Owner's discretion.
 - B. Clearance sampling shall be conducted as required in N.J.A.C. 8:60/12:120 Asbestos Licenses and Permits Regulations.
 1. The interior removal work areas shall be subject to clearance sampling utilizing PCM or Transmission Electron Microscopy (TEM) as a matter of Code.
 - C. Respond to unacceptable progress or clearance air sampler results obtained by the monitoring firm during any portion of this Work as required by the Subcode.
- 3.7 DISPOSAL AND WASTE TRANSPORT
- A. ON-SITE STORAGE
 1. Provide lockable, six-sided waste containers to accept containerized asbestos-contaminated waste. Maintain asbestos containers left on-site in secure locations.
 - B. ASBESTOS WASTE SHIPMENT RECORDS. A copy of the waste manifest indicating the chain of custody, final disposal site and date shall be provided to the Owner for each waste container or truck containing asbestos-containing or asbestos-contaminated waste within 15 days from when the container or truck leaves the worksite.
- 3.8 OCCUPANCY CONDITIONS PRIOR TO BUILDING WIDE DEMOLITION
- A. All persons entering the subject building structures after abatement and prior to demolition shall be required to wear appropriate NIOSH approved respiratory protection.

END OF SECTION 28200

SECTION 28300 - LEAD-BASED PAINT MANAGEMENT

PART 1 - LEAD-BASED PAINT MANAGEMENT: GENERAL

- 1.1 Lead-based paint (LBP) was found to be associated with the following building elements addressed by the investigations at the existing Building 2700 - Former Meyer Center and Building 2705 (Block 101, Lot 1) in the Borough of Tinton Falls, Monmouth County, New Jersey:

Building 2700 – Former Myer Center

LBP was identified to be associated with the following building elements addressed by this investigation at Building 2700 – Former Myer Center:

- the subject building structure's various metal door, metal stair stringer, metal stair handrail, metal stair riser and metal catwalk beam elements throughout the building structure; and
- the subject building structure's concrete wall elements in the Section 5 Basement space (O&A Section 5).

No LBP was identified to be associated with the other building elements addressed by this investigation at Building 2700 – Former Myer Center.

Building 2705

LBP was identified to be associated with the following building elements addressed by this investigation at Building 2705:

- the subject building structure's various interior metal column elements.

No LBP was identified to be associated with the other building elements addressed by this investigation at Building 2705.

- A. The Lead-Based Paint Management Work, or "LBP Work", shall be defined as the Work that encompasses the handling of lead-based paint (LBP), materials to which LBP is applied, and any waste and contamination resulting from the handling or disturbance of LBP, or any other lead-bearing surface.
- B. It is not the intent of this section to define or require a LBP abatement project or LBP hazard abatement project as may be defined by the New Jersey Lead Hazard Evaluation and Abatement Subcode (N.J.A.C. 5:17). Further, these Contract Documents are not meant to require the Contractor to retain a New Jersey-licensed lead abatement contractor to complete the LBP Work as specified. This statement, nor any other in the Contract Documents, does not limit the Contractor's responsibility to act in a manner pursuant to N.J.A.C. 5:17, or any other regulations, depending upon conditions resulting from the Contractor's performance of the Work and other activities.
- C. This section pertains to all Work for this project involving the disturbance of paint, and related dust/debris. All painted surfaces are likely to contain some concentration of lead. There are also surfaces that may be contaminated with lead containing dust and/or debris. As part of the performance of this Work, incorporate appropriate lead paint/dust testing, containment, worker protection and disposal procedures.
- D. Perform all work necessary to carry out the proper removal and disposal of all lead-contaminated waste, in accordance with all applicable laws, codes, rules and regulations and in accordance with the requirements set forth in this section.

1.2 SCOPE OF LBP MANAGEMENT WORK

- A. The Scope of the LBP Work shall include those activities necessary to assure compliance with applicable worker protection and waste disposal standards, and to prevent release of fugitive lead-containing debris and dust generated from the LBP to the surrounding properties. These Specifications delineate no specific activities, but rather the Contractor shall prepare and make available upon request by the Owner or authorized representative a plan sufficient to achieve these requirements.

PART 2 - JOB CONDITIONS

2.1 Contractor Responsibility

- A. Provide investigation as necessary to properly plan LBP Management Work.

2.2 Phasing

- A. Phase the LBP Work in accordance with the overall demolition Work phasing. The LBP Work is not meant to be an activity separate from the overall demolition process, but rather an essential element of the demolition Work to allow for the demolition and any other related Work to be undertaken with proper LBP management.

2.3 Methods

- A. Provide work methods pursuant to applicable standards and good industry practice. The Contractor's attention is particularly brought to OSHA requirements relative to torch cutting controls and use of HEPA-fitted cutting tool options under certain conditions if applicable.

PART 3 - REGULATORY REQUIREMENTS, REFERENCE STANDARDS

- 3.1 Include provisions for the proper containment, removal, and disposal of lead-containing waste, as well as appropriate worker protection in accordance with all applicable laws, codes, rules and regulations pertaining to lead. Applicable guidelines and standards listed in this Scope of Work include, but are not necessarily limited to:

- 1. Code of Federal Regulations (CFR) Publications:

- 29 CFR, Part 1926.62 Lead Exposure in Construction; Interim Final Rule Vol. 58, No. 84

- 40 CFR 61, Subpart A General Provisions (Hazardous Air Pollutants Listing)

- 40 CFR 61.152 Standards for Waste Manufacturing, Demolition, Renovation, Spraying and Fabricating Operations

- 40 CFR 241 Guidelines for the Land Disposal of Solid Wastes

- 40 CFR 257 Criteria for Classification of Solid Waste

- 40 CFR 261 Identification and Listing of Hazardous Wastes

- 40 CFR 262 Standards Applicable to Generators of Hazardous Waste

2. Current NJDEP requirements, N.J.A.C. 7:26-1 et.seq.

PART 4 - WORKER PROTECTION

4.1 General

- A. Treat any surface coating and/or underlying substrate containing lead in any concentration that will be disturbed as a potential lead hazard to workers in accordance with 29 CFR 1926.62, Lead Exposure in Construction. This standard applies to all construction work in which lead in any concentration is present.
- B. Maintain a program in accordance with 29 CFR 1926.62 at minimum and be responsible for protecting and training employees on worker safety, health hazards, etc. relating to lead. This program shall be incorporated into the Contractor's written health and safety plan. The Contractor should consult the following publications and/or competent environmental counsel:

OSHA - 3079 Respiratory Protection

OSHA - 3142 Lead in Construction

PART 5 - MANAGEMENT PROCEDURES

5.1 Work Plans

- A. Prepare and make available upon request by the Owner or authorized representative task specific Work Plan prior to starting Work detailing how the Contractor shall accomplish each task of work related to the disturbance of any LBP surface or contaminated material. Prepare the Work Plan with the needs, logistics and constraints of the individual job in mind, taking into account such factors as paint removal method, worker safety, proximity to other personnel and/or the public, protection of the environment including containment and air monitoring requirements, condition of the underlying substrate.
- B. Prepare and make available upon request by the Owner or authorized representative the Plan to include methods of minimizing and containing the generation of all dust, including dust generated while cleaning up construction and demolition debris. These methods may include such techniques as wet mopping and/or wiping, HEPA vacuuming or the use of a negative pressure ventilation system where lead dust is generated. Once the Work has been completed and debris has been properly removed from the site, all surfaces shall be free and clear of visible dust. All work areas shall be cleaned on a daily basis at the end of each shift. Particular attention to be paid to fugitive dust which may arise from the sites and contaminate adjacent properties.
- C. At no time perform any Work which may impact upon lead containing material until authorization from the Owner or its authorized representative is obtained.

PART 6 - PROTECTION OF ADJACENT AREAS AND THE ENVIRONMENT

6.1 Control of Contamination On-Site

- A. If it's determined by visual identification that the exterior of this property, or adjacent properties have been contaminated as a result of the Contractor's work, clean the affected premises at no charge to the Owner. The Contractor shall be responsible for all costs incurred by this clean-up activity.

6.2 Disposal Requirements

- A. Perform sampling and analysis as may be required to assure the proper and legal handling of the waste. If any chemical analysis or sampling is performed by or on behalf of the Contractor, its Transporter, or its Treatment Storage and Disposal facility (TSD), a copy of such analysis must be provided to the Owner at no additional cost to the Owner. (Note: As prevailing law may allow, painted metal may be designated as recyclable and disposed of at a scrap metal facility for reuse or resale).
- B. Ensure that waste disposal Transporter (be it the Contractor itself or a Subcontractor) warrants and represents possession of all permits and/or licenses required under the Resource Conservation and Recovery Act (RCRA) as well as any state or local permits or licenses required for removal, repackaging, transportation and disposal of hazardous waste.
- C. Treat and dispose hazardous waste materials removed by the waste disposal Subcontractor at an Environmental Protection Agency (EPA) permitted Treatment, Storage and Disposal Facility.
- D. Treat and dispose of all wastes, drums, and other items removed hereunder within sixty (60) days after removal from the site. Ensure that the waste disposal Subcontractor provides completed shipping documents for all hazardous wastes removed, which contain the information required under 40 CFR Part 262 Subpart B (hereinafter the "Manifest Form") and NJDEP requirements. Such Certificates shall include references to the Manifest Form for the shipment as well as address and EPA identification numbers for the generator facility.
- E. Ensure that all TSD facilities or transporters which the waste disposal Transporter intends to use to treat and/or dispose of hazardous waste are approved for use by the Owner prior to any delivery of waste by the waste disposal Transporter to such TSD facility. The Owner reserves the right to inspect the waste disposal Transporter's equipment storage facility and TSD facility at any time prior to or subsequent to the award of this Contract.
- F. Should any problems arise regarding the TSD facility chosen to accept the waste for treatment and disposal that would require the return of waste to the Owner, or should such TSD facility have violated any environmental regulation which would result in regulatory enforcement action, ensure that the waste disposal Subcontractor immediately notifies the Contractor in writing of such situation, identifies an alternate TSD and obtains written approval from the Owner for disposal at such TSD.
- G. Ensure that the waste disposal Transporter provides completed shipping documents, hereinafter referred to as "Bills of Lading", for all non-hazardous waste removed from Owner property. A Bill of Lading must accompany each waste shipment and must include information regarding the quantity and type of waste, the waste transporter name, and the date of removal from the property.

6.3 Transportation Requirements

- A. Arrange that the waste disposal Transporter providing waste transportation services possesses a valid Waste Hauler's permit issued pursuant to the NJDEP regulations.
- B. Package and transport all waste shall in accordance with the applicable sections of the Department of Transportation (DOT) regulations.

END OF SECTION 28300

SECTION 28700 - UNIVERSAL WASTE MANAGEMENT

PART 1 – UNIVERSAL WASTE MANAGEMENT: GENERAL

1.1 RELATED DOCUMENTS

- A. Read this Section as part of the overall contract documents.

1.2 SCOPE OF UNIVERSAL WASTE MANAGEMENT WORK

- A. Work required by this section includes removal, handling and disposal/recycling of all Universal Wastes to include but not be limited to: mercury-containing fluorescent light tubes, PCB-containing light fixture ballasts switches, transformers, oils/varnishes, batteries, radioactive materials (smoke detectors and exit signs). The Contractor is responsible to furnish all labor, materials, facilities, equipment, services, permits and agreements necessary to perform the work required for removal of PCB-containing ballasts, mercury-containing light tubes and mercury-containing thermostat devices in accordance with these specifications, and all local, state and federal regulations; (40 CRF 761, Polychlorinated Biphenyls Manufacturing, Processing, Distribution in Commerce and Use Prohibitions); (49 CRF 178, Shipping Container Specifications).
- B. For the purpose of this project, all ballasts which do not have the term “No PCB’s” printed on the label must be assumed to be PCB-containing and be removed and disposed of as such. Ballasts which have the term “No PCB’s” printed on the label may be disposed of as construction and demolition waste. Intact, non-leaking PCB containing ballasts (small capacitor) may be disposed of as municipal solid waste. It is recommended that mercury florescent bulbs and mercury switch items shall be recycled, as applicable, as opposed to being treated as a universal waste items per EPA disposal requirements as outlined in Part 6.
- C. The Scope of Work includes the removal, containerization and disposal/recycling of the following elements from the existing Former Myer Center’s Building 2700 and Building 2705 (Block 101, Lot 1) in the Borough of Tinton Falls, Monmouth County, New Jersey:

Building 2700 – Former Myer Center

TYPE OF MATERIAL/EQUIPMENT	LOCATION	APPROX. AMOUNT
Suspected (likely) PCB-containing light ballasts	Throughout the subject building structures Fourth Floor spaces	3,938 ballasts (estimated)
	Throughout the subject building structures Third Floor spaces	3,781 ballasts (estimated)
	Throughout the subject building structures Second Floor spaces	4,087 ballasts (estimated)
	Throughout the subject building structures First Floor and various Mezzanine spaces	3,712 ballasts (estimated)

Suspected (likely) PCB-containing light ballasts (con't)	Throughout subject building structures O&A spaces	1,167 ballasts (estimated)
Fluorescent light tubes	Throughout the subject building structures Fourth Floor spaces	7,678 light tubes (estimated)
	Throughout the subject building structures Third Floor spaces	7,562 light tubes (estimated)
	Throughout the subject building structures Second Floor spaces	8,174 light tubes (estimated)
	Throughout the subject building structures First Floor and various Mezzanine spaces	7,404 light tubes (estimated)
	Throughout subject building structures O&A spaces	2,334 light tubes (estimated)
Suspected Mercury-containing thermostats	Throughout the subject building structures First Floor and various Mezzanine spaces and O&A spaces	25 thermostats (estimated)
Suspected Sodium-vapor light bulbs	Throughout the subject building structure various First Floor spaces and O&A Boiler Room space	50 light bulbs

Building 2705

TYPE OF MATERIAL/EQUIPMENT	LOCATION	APPROX. AMOUNT
Suspected (likely) PCB-containing light ballasts	Throughout the subject building structure	30 ballasts (estimated)
Fluorescent light tubes	Throughout the subject building structure	60 light tubes (estimated)
Suspected Mercury-containing thermostats	Throughout the subject building structure	2 thermostats (estimated)

- D. The Contractor shall be responsible to verify all material quantities and to determine job site conditions.
- E. Provide copies of all manifests and/or recycling data to the Owner at the completion of the work.

PART 2 – ENVIRONMENTAL REQUIREMENTS

- A. Use special clothing, including but not limited to: disposable gloves (polyethylene) and eye protection.
- B. Comply with all applicable local, state, and federal requirements.

PART 3 – WORK OPERATIONS

3.1. WORK OPERATIONS

- A. Ensure that work operations or processes involving PCB ballasts, PCB-contaminated materials and mercury are conducted in accordance with 40 CRF 761 and the applicable requirements of this section, including but not limited to:
 - B. Obtaining advance arrangements of recycling / disposal sites.
 - C. Notifying Owner or authorized representative prior to commencing the operation.
 - D. Reporting leaks and spills to the Owner or authorized representative.
 - E. Cleaning up spills.
 - F. Inspecting waste containers for leaks and forwarding copies of inspection reports to the Owner or authorized representative.
 - G. Maintaining inspection, inventory and spill records.
 - H. Recover and properly handle/dispose of all fluids and/or oils contained within any transformer. Assume any such fluid to be PCB containing.

3.2. SPILL/CLEANUP REQUIREMENTS

- A. Immediately report to the Owner any mercury spills / leaks.
- B. Rope off area around edges of leak or spill and post caution signs at the area.
- C. Initiate cleanup of spills as soon as possible. Mop up any liquid with rags or other conventional absorbent. The spent absorbent shall be properly contained and disposed of as solid waste.
- D. Document the cleanup with records of decontamination in accordance with 40 CRF 761, Section 125, Requirements for PCB Spill Cleanup. Provide certification of decontamination.

PART 4 - STORAGE/LABELING OF CONTAINERS

4.1. STORAGE/LABELING

- A. Store materials in DOT Specification 5, 5B or 17C containers with removable heads – 49 CFR 178. Boxes shall be suitable for fluorescent light tubes. Label containers with the following:
 - B. Date the item was placed in storage and the name of the cognizant activity and building.

- C. Affix caution labels to all universal waste containers.

PART 5 - IDENTIFICATION NUMBER

5.1 IDENTIFICATION NUMBER

- A. Identification Number – Federal regulations require that generators, transporters, commercial storers and disposers of regulated hazardous waste possess U.S. EPA identification numbers. The Contractor shall verify that the activity has a U.S. EPA generator identification number for use on the Uniform Hazardous Waste Manifest (EPA form 8700-22). If not, the Contractor shall advise the activity that it must file and obtain an identification number with EPA prior to commencement of removal work. (Not applicable to item listed in 6.01).

PART 6 - TRANSPORTER CERTIFICATION/CERTIFICATE OF DISPOSAL

6.1 DISPOSAL

- A. Comply with disposal requirements and procedures as outlined in 40 CFR.
- B. Certificate for the waste materials disposed of / recycled shall include:
- C. The identity of the disposal facility, by name, address and EPA identification number.
- D. The identity of the universal waste affected by the Certificate of Disposal including reference to the manifest number for shipment.
- E. A statement certifying the fact of disposal / recycling of the identified universal waste, including the dates of disposal and identifying the disposal process used.

2. REMOVAL AND DISPOSAL OF CONTAMINATED CONCRETE AND GLAZING CAULK

NJDEP REQUIREMENTS AND SUMMARY OF DEMOLITION SPECIFICATION GUIDELINES

Due to the presence of contaminated concrete and caulk at the Site structures Bldg 2700 and Bldg 2705, all work to be performed associated with the demolition of these structures and handling of concrete debris for either off-site recycling or disposal as solid waste shall be in accordance the following regulatory and/or technical guidance:

- NJDEP Guidance for Characterization of Concrete and Clean Material Certification for Recycling (January 12, 2010),
- NJDEP Technical Requirements for Site Remediation N.J.A.C. 7:26E;
- Administrative Requirements for Remediation of Contaminated Sites (ARRCS) Rules N.J.A.C 7:26C;
- 40 CFR 761 Subpart N
- Any other associated regulatory and technical guidance documents.

SUMMARY OF DEMOLITION SPECIFICATION GUIDELINES

Concrete Management/Disposal

The Contractor shall remove all concrete debris as part of the renovation of the Site. The areas of impacted/contaminated concrete identified in the Report of Concrete, Masonry & Caulk Sampling prepared by T&M for this project shall be removed from the structures prior to demolition and disposed of in accordance with the NJDEP Guidance for Characterization of Concrete and Clean Material Certification for Recycling (January 12, 2010).

If the concrete debris is not properly characterized, sampled and/or tested, or has been determined to be impacted with contaminants of concern at concentrations in excess of the applicable NJDEP remediation standards (N.J.A.C. 7:26D), or not approved by Owner for recycling, the Contractor shall properly dispose of the concrete debris as solid waste. For off-Site disposal of the concrete debris as solid waste, these materials shall be analyzed for the receiving disposal facility specific permitting requirements, if necessary.

The Owner shall be notified 48 hours prior to the removal of the concrete debris to allow for the on-site inspection during the removal.

Materials Characterized as Non-Hazardous Waste

1. The Contractor shall provide the name, address, phone number and contact person for the designated facility for disposal of all materials classified as non-hazardous waste. The disposal facility as well as the transportation Contractor shall be subject to the approval of the Owner.
2. Any contaminated materials which meet the criteria of non hazardous industrial waste shall be brought to an approved facility for recycling or disposal. The Owner reserves the right to reject any recycling and/or disposal facility for any reason and to decide on the ultimate disposal facility for contaminated materials generated at the Site. Once the material is delivered to the recycling or disposal facility identified and approved by the Owner, copies of the bill of lading and/or Certificate of Destruction stating the date and amount of material received and recycled and/or disposed is required to be submitted to Owner.

Materials Characterized as Hazardous Waste

1. The Contractor shall provide the name, address, phone number and contact person for the designated facility for disposal of all materials characterized as hazardous waste. The disposal facility as well as the transportation Contractor shall be subject to the approval of the Owner.
2. Materials that are characterized as hazardous waste shall be placed in containers meeting the construction, type, and labeling requirements of N.J.A.C. 7:26 7.2, and the United States Department of Transportation (49 CFR 171 49 CFR 179).
3. Any Contractor or Subcontractor who proposes to transport hazardous materials shall meet the personnel, vehicle, safety and maintenance requirements of the U.S.D.O.T., and/or all agencies having legal jurisdiction.
4. The hazardous waste transportation Contractor shall comply with all regulations and requirements regarding Hazardous Waste including but not limited to those required by N.J.A.C. 7:26 1, 4, 7 13A, 16, 16A, 17.

"Uniform Hazardous Waste Manifest" forms and certified weight tickets shall be obtained by the transportation Contractor, and shall satisfy the requirements of N.J.A.C. 7:26 7.3, and shall be submitted to the Owner within five (5) working days after the waste leaves the Site. The Owner reserves the right to reject any disposal method, which is not in his best interest.

END OF SECTION 28700

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes cast-in-place concrete for the following:
1. Abandoned Manholes

1.2 REFERENCES

- A. American Concrete Institute:
1. ACI 301 - Specifications for Structural Concrete.
 2. ACI 305 - Hot Weather Concreting.
 3. ACI 306.1 - Standard Specification for Cold Weather Concreting.
 4. ACI 308.1 - Standard Specification for Curing Concrete.
 5. ACI 318 - Building Code Requirements for Structural Concrete.
- B. ASTM International:
1. ASTM C31/C31M - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
 2. ASTM C33 - Standard Specification for Concrete Aggregates.
 3. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
 4. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete.
 5. ASTM C143/C143M - Standard Test Method for Slump of Hydraulic Cement Concrete.
 6. ASTM C150 - Standard Specification for Portland Cement.
 7. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.
 8. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
 9. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
 10. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
 11. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete.
 12. .
 13. ASTM C1064/C1064M - Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
 14. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete.
 15. ASTM C1218/C1218M - Standard Test Method for Water-Soluble Chloride in Mortar and Concrete.
 16. ASTM D994 - Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type).
 17. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
 18. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.

1.3 SUBMITTALS

- A. Product Data: Submit data on joint devices, attachment accessories, and admixtures.
- B. Design Data:
 - 1. Submit concrete mix design for each concrete strength. Submit separate mix designs when admixtures are required for the following:
 - a. Hot and cold weather concrete work.
 - b. Air entrained concrete work.
 - 2. Identify mix ingredients and proportions, including admixtures.
 - 3. Identify chloride content of admixtures and whether or not chloride was added during manufacture.

1.4 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Accurately record actual locations of embedded utilities and components concealed from view in finished construction.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 301.
- B. Conform to ACI 305 when concreting during hot weather.
- C. Conform to ACI 306.1 when concreting during cold weather.
- D. Acquire cement and aggregate from one source for Work.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Maintain concrete temperature after installation at minimum 50 degrees F for minimum 7 days.

1.7 COORDINATION

- A. Coordinate placement of joint devices with erection of concrete formwork and placement of form accessories.

PART 2 PRODUCTS

2.1 CONCRETE MATERIALS

- A. Cement: ASTM C150, Type I Portland type

OR

- B. Normal Weight Aggregates: ASTM C33
 - 1. Coarse Aggregate Maximum Size: 3inches

C. Water: ACI 301; potable

2.2 ADMIXTURES

A. Manufacturers:

1. BASF Corporation-Construction Systems
2. Cortec Corporation
3. Euclid Chemical Company (The); an RPM company
4. General Resource Technology
5. Grace Construction Products; W.R. Grace & Co.--Conn.
6. Green Umbrella
7. Sika Corporation

B. Air Entrainment: ASTM C260.

C. Chemical: ASTM C494/C494M.

1. Type A - Water Reducing.
2. Type B - Retarding.
3. Type C - Accelerating.
4. Type D - Water Reducing and Retarding.
5. Type E - Water Reducing and Accelerating.
6. Type F - Water Reducing, High Range.
7. Type G - Water Reducing, High Range and Retarding.

D. Fly Ash or Calcined Pozzolan: ASTM C618.

E. Silica Fume: ASTM C1240.

F. Plasticizing: ASTM C1017/C1017M

2.3 ACCESSORIES

2.4 JOINT DEVICES AND FILLER MATERIALS

A. Joint Filler ASTM D1751 or ASTM D994; Asphalt impregnated fiberboard

2.5 CONCRETE MIX

A. Select proportions for concrete in accordance with ACI 301 or field experience.

B. All concrete shall have a minimum compressive strength of 3,000 psi at 28 days, a maximum water/cement ratio of 0.45 and shall have 6% entrained air.

C. Admixtures: Include admixture types and quantities indicated in concrete mix designs only when approved by Engineer.

1. Use accelerating admixtures in cold weather. Use of admixtures will not relax cold weather placement requirements.

- 2. Do not use calcium chloride or admixtures containing calcium chloride.
- D. Ready Mixed Concrete: Mix and deliver concrete in accordance with ASTM C94.
- E. Site Mixed Concrete: Mix concrete in accordance with ACI 318.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify requirements for concrete cover over reinforcement.
- B. Verify anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with placing concrete.

3.2 PREPARATION

- A. Remove debris from areas receiving concrete before concrete is placed.
- B. Remove water from areas receiving concrete before concrete is placed.

3.3 PLACING CONCRETE

- A. Place concrete in accordance with ACI 301
- B. Notify testing laboratory minimum 24 hours prior to commencement of operations.
- C. Deposit concrete at final position. Prevent segregation of mix.
- D. Place concrete in continuous operation for each panel or section determined by predetermined joints.
- E. Consolidate concrete.
- F. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- G. Do not interrupt successive placement; do not permit cold joints to occur.

3.4 CURING AND PROTECTION

- A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
 - 1. Protect concrete footings from freezing for minimum 5 days.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

3.5 FIELD QUALITY CONTROL

- A. Perform field inspection and testing in accordance with ACI 318
- B. Provide free access to Work and cooperate with appointed firm.

3.6 DEFECTIVE CONCRETE

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.
- B. Repair or replacement of defective concrete will be determined by Architect/Engineer.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect/Engineer for each individual area.

END OF SECTION 03 30 00

SECTION 31 05 13 - SOILS FOR EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Subsoil materials.
 - 2. Topsoil materials.

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. ASTM International:
 - 1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 2. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 3. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

1.3 SUBMITTALS

- A. Materials Source: Submit name of imported materials source.

1.4 QUALITY ASSURANCE

- A. Maintain one copy on site.

PART 2 PRODUCTS

2.1 SUBSOIL MATERIALS

- A. Subsoil materials are generally suitable for use as fill provided they are free of organic matter, are excavated, stockpiled, placed and compacted as defined in the other Sections of this specification covering their placement and compaction. It is anticipated that all excavated soils will remain on the project site.
- B. Aggregate soil

2.2 TOPSOIL MATERIALS

1. Topsoil stripped during site clearing may be used and respread as topsoil in accordance with the plans and applicable notes. It is anticipated that all excavated soils will remain on the project site.
2. Topsoil that is reused shall be free of subsoil, weeds, litter, sod, stiff clay, stones lumps, roots and other debris larger than 1 inch. Its pH shall be between 5.5 and 6.5 and it shall have soluble salts less than 2- ppm or 0.25 mohms/cm (conductivity) for a 1:2 soil:water ratio. Also, the nutrient levels shall be tested and appropriate fertilizers shall be applied to correct any nutrient deficiencies.

2.3 ON-GRADE PLANTING MIXTURE

- A. Shall be a mixture by volume of the following materials in quantities specified: 20% peat moss, 70% topsoil, 10% coarse sand. Add 5 pounds of 0-20-20 fertilizer per cubic yard of planting mixture.
- B. Offsite Topsoil: If on-site topsoil is insufficient in quantity to provide specified thickness, provide topsoil from approved off-site sources as required to complete the work. Off-site topsoil shall meet the following minimum requirements.
 1. Topsoil shall be fertile, friable, well drained, pH range of 6.0 to 6.5, free of sub-soil, toxic substances harmful to plant growth without clay lumps, stones, roots or debris. Analysis of content shall be as follows:

Sand	-	35% to 40%
Clay	-	15% to 20%
Organic Matter	-	2% - 10% max.
Silt	-	Balance

2. The contractor shall be responsible for the screening of topsoil should the topsoil warrant the need. The topsoil will be tested for both the physical composition and the chemical properties.

2.4 SOURCE QUALITY CONTROL

- A. Testing and Analysis of Subsoil Material: Perform in accordance with ASTM D698 and ASTM D1557.
- B. Testing and Analysis of Topsoil Material: Test for pH, Soluble Salts and Nutrient Deficiencies
- C. When tests indicate materials do not meet specified requirements, change material and retest.
- D. Furnish materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.1 EXCAVATION

- A. Excavate subsoil and topsoil from areas designated. Strip topsoil to full depth of topsoil in designated areas.
- B. Stockpile excavated materials meeting requirements for subsoil materials and topsoil materials
- C. Remove excess excavated materials not intended for reuse.
- D. Remove excavated materials not meeting requirements for subsoil and topsoil from site.

3.2 STOCKPILING

- A. Stockpile materials on site at locations indicated on the plans or as directed by the Owner.
- B. Separate differing materials with dividers or stockpile apart to prevent mixing.
- C. Stockpile topsoil in accordance with the Soil Conservation District requirements.
- D. Prevent intermixing of soil types or contamination.
- E. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.
- F. Stockpile unsuitable materials on impervious material and cover to prevent erosion and leaching.
- G. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION 31 05 13

SECTION 31 05 16 - AGGREGATES FOR EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Coarse aggregate materials.
 - 2. Structural Fill

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO M147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base and Surface Courses.
 - 2. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. ASTM International:
 - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - 2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m<sup>3 - 3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m<sup>3 - 4. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
 - 5. ASTM D4318 - Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.</sup></sup>

1.3 SUBMITTALS

- A. Samples: Submit, in air-tight containers, 10 lb. sample of each type of fill to testing laboratory.
- B. Materials Source: Submit name of imported materials suppliers.
- C. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.4 QUALITY ASSURANCE

- A. Furnish each aggregate material from single source throughout the Work.
- B. Perform Work in accordance with NJDOT Standard Specifications for Road and Bridge Construction, Section 901, as currently amended.
- C. Maintain one copy of each document on site.

PART 2 PRODUCTS

2.1 STRUCTURAL FILL

- A. Structural Fill shall conform to Aggregate Type I-5 in accordance with NJDOT Standard Specifications for Road and Bridge Construction, Section 901.11, as currently amended.

2.2 COARSE AGGREGATE

- A. Coarse Aggregate No. 57 & 67 shall be in accordance with NJDOT Standard Specifications for Road and Bridge Construction, Section 901.03, as currently amended.
- B. DGA Material shall conform to virgin DGA in accordance with NJDOT Standard Specifications for Road and Bridge Construction, Section 901.10, as currently amended.
- C. Onsite coarse aggregate that is in accordance with NJDOT Standard Specifications for Road and Bridge Construction, Section 901.03, as currently amended, may be used as fill on site.

2.3 SOURCE QUALITY CONTROL

- A. Testing and Analysis: Perform in accordance ASTM D1557. ASTM D4318. ASTM C136.
- B. When tests indicate materials do not meet specified requirements, change material and retest.

2.4 STOCKPILING

- A. Stockpile in sufficient quantities to meet Project schedule and requirements.
- B. Separate different aggregate materials with dividers or stockpile individually to prevent mixing.
- C. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

2.5 STOCKPILE CLEANUP

- A. Remove stockpile, leave area in clean and neat condition. Grade site surface to prevent free standing surface water.

END OF SECTION 31 05 16

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Removing surface debris.
2. Removing designated paving, curbs, and sidewalk.
3. Removing designated trees, shrubs, and other plant life.
4. Cutting and Capping utilities.
5. Removing designate site appurtenances.
6. Stripping topsoil.

1.2 SUBMITTALS

- ##### A. Product Data: Submit data for herbicide. Indicate compliance with applicable codes for environmental protection.

1.3 QUALITY ASSURANCE

- ##### A. Perform Work in accordance with local and state standards.

PART 2 - EXECUTION

2.1 EXAMINATION

- A. Verify conditions before starting work.
- B. Verify underground utilities before starting work.
- C. Verify existing plant life designated to remain is tagged or identified.
- D. Identify waste area for placing removed materials.

2.2 PREPARATION

- ##### A. Call Local Utility Line Information service not less than three (3) working days before performing Work.
1. Request underground utilities to be located and marked within and surrounding construction areas. If utilities are not marked out by local utility service, engage the

services of an underground utility locating service to determine the exact depth and location of existing utilities.

2.3 PROTECTION

- A. Locate, identify, and protect utilities indicated to remain, from damage.
- B. Protect trees, plant growth, and features designated to remain.
- C. Protect bench marks, survey control points, and existing structures from damage or displacement.

2.4 CLEARING

- A. Clear areas required for access to site and execution of Work to minimum depth of 12 inches
- B. Remove trees and shrubs indicated. Remove stumps.
- C. Clear undergrowth and deadwood, without disturbing subsoil.

2.5 REMOVAL

- A. Remove debris, rock, and extracted plant life from site.
- B. Remove paving, curbs, and sidewalks.
- C. Cut and Cap abandoned utilities. Indicate cut and cap locations for underground utilities on Record Documents.
- D. Continuously clean-up and remove waste materials from site. Do not allow materials to accumulate on site.
- E. Do not burn or bury materials on site. Leave site in clean condition.

END OF SECTION 311000

SECTION 31 22 13 - ROUGH GRADING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cutting, grading, filling, rough contouring and compacting soil in areas to be graded and restored.

1.2 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
3. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
4. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
5. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
6. ASTM D2419 - Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.
7. ASTM D2434 - Standard Test Method for Permeability of Granular Soils (Constant Head).
8. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
9. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 CLOSEOUT SUBMITTALS

- ##### A. Project Record Documents: Accurately record limits of cutting, filling, and grading where soil movement has occurred.

1.4 QUALITY ASSURANCE

- ##### A. Maintain one copy of each document on site.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Material shall consist of in-situ subsoil and topsoil.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify survey bench mark and intended elevations for the Work are as indicated on Drawings.

3.2 PREPARATION

- A. Call Local Utility Line Information service not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas. If utilities are not marked out by local utility service, engage the services of an underground utility locating service to determine the exact depth and location of existing utilities.
- B. Identify required lines, levels, contours, and datum.
- C. Protect existing utilities from damage.
- D. Protect plant life, lawns, rock outcropping, and other features to remain.
- E. Protect bench marks, survey control point, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.3 SUBSOIL EXCAVATION

- A. Excavate subsoil from areas as need to achieve the lines, grading and layout as shown on the plans.
- B. Do not excavate or perform grading operations while the subsoil is wet.
- C. Stockpile topsoil in area designated on site and protect from erosion. Stockpile material in accordance with the Plans and Soil Conservation District requirements.

3.4 FILLING

- A. Fill placed should be compacted with light equipment to provide a stable surface that will not settle in the future. Over compaction of these areas is not desirable.
- B. Maintain optimum moisture content of fill materials to attain required compaction density.
- C. Fill areas to contours and elevations with unfrozen materials.

- D. Make grade changes gradual. Blend slope into level areas.
- E. Repair or replace items indicated to remain damaged by excavation or filling.

3.5 TOLERANCES

- A. Top Surface of Subgrade: Plus or minus 1/10 foot from required elevation.

3.6 FIELD QUALITY CONTROL

- A. Perform laboratory material tests in accordance with ASTM D1557 and ASTM D698
- B. Perform in place compaction tests in accordance with the following:
 - 1. Density Tests: ASTM D1556, ASTM D2167, or ASTM D2922.
 - 2. Moisture Tests: ASTM D3017.
- C. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

END OF SECTION 31 22 13

SECTION 31 23 16 - EXCAVATION

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes excavating for building foundations, paving, roads, parking areas, slabs-on-grade, site structures and landscaping.

1.2 SUBMITTALS

- A. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan.
- B. Shop Drawings: Indicate soil densification grid for each size and configuration footing requiring soils densification.

1.3 QUALITY ASSURANCE

- A. Maintain one copy of each document on site.

1.4 QUALIFICATIONS

- A. Prepare excavation protection plan under direct supervision of Professional Engineer experienced in design of this Work and licensed in State of New Jersey.

PART 2 EXECUTION

2.1 PREPARATION

- A. Call Local Utility Line Information service not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas. If utilities are not marked out by local utility service, engage the services of an underground utility locating service to determine the exact depth and location of existing utilities.
- B. Identify required lines, levels, contours, and datum.
- C. Notify utility company to remove and relocate utilities.
- D. Protect utilities indicated to remain from damage.
- E. Protect plant life, lawns, rock outcroppings, and other features remaining as portion of final landscaping.

- F. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

2.2 EXCAVATION

- A. Underpin adjacent structures which may be damaged by excavation work.
- B. Excavate subsoil to accommodate building foundations, slabs-on-grade, paving, and site structures, and construction operations.
- C. Excavate to working elevation for piling work.
- D. Compact disturbed load bearing soil in direct contact with foundations to original bearing capacity. Remove soft materials and replace with fill. Compact to 95 % Modified Proctor Density.
- E. Slope banks with machine to angle of repose or less until shored.
- F. Do not interfere with 45 degree bearing splay of foundations.
- G. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- H. Trim excavation. Remove loose matter.
- I. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd measured by volume.
- J. Notify Owner of unexpected subsurface conditions.
- K. Remove excess and unsuitable material from site.
- L. Stockpile excavated material in area designated on site.
- M. Repair or replace items indicated to remain damaged by excavation.

2.3 FIELD QUALITY CONTROL

- A. Request inspection of excavation and controlled fill operations in accordance with applicable code.
- B. Request visual inspection of bearing surfaces by inspection agency before installing subsequent work.

2.4 PROTECTION

- A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

- C. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

END OF SECTION 31 23 16

SECTION 31 23 23 - FILL

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes backfilling, backfilling site structures to subgrade elevations, and imported fill.

1.2 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. ASTM International:
 - 1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - 2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 - 3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - 4. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
 - 5. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.3 SUBMITTALS

- A. Product Data: Submit data for geotextile fabric indicating fabric and construction.
- B. Materials Source: Submit name of imported fill materials suppliers.
- C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements

1.4 QUALITY ASSURANCE

- A. Maintain one copy of each document on site.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Subsoil Fill
 - 1. See Soils for Earthwork

- B. Imported Fill
 - 1. Importation of any fill material for backfill of the excavation sand/or construction shall be pre-approved by the design engineer prior to fill material being imported to the site. Certified clean fill shall be used in excavated areas where structural fill is not being used.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify sub-drainage, damp proofing, or waterproofing installation has been inspected.
- B. Verify underground tanks are anchored to their own foundations to avoid flotation after backfilling.
- C. Verify structural ability of unsupported walls to support loads imposed by fill.

3.2 PREPARATION

- A. Compact subgrade to density requirements for subsequent backfill materials.
- B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with structural fill and compact to density equal to or greater than requirements for subsequent fill material.
- C. Proof roll to identify soft spots; fill and compact to density equal to or greater than requirements for subsequent fill material.

3.3 BACKFILLING

- A. Backfill areas to contours and elevations with unfrozen materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen or spongy subgrade surfaces.
- C. Place geotextile fabric over fill prior to placing next lift of fill.
- D. Place material in continuous layers, maximum 8 inches compacted depth.
- E. Employ placement method that does not disturb or damage other work.
- F. Maintain optimum moisture content of backfill materials to attain required compaction density.
- G. Backfill against supported foundation walls and do not backfill against unsupported foundation walls.
- H. Backfill simultaneously on each side of unsupported foundation walls until supports are in place.
- I. Slope grade away from building minimum 2 percent slope for minimum distance of 10 ft, unless noted otherwise.

- J. Make gradual grade changes. Blend slope into level areas.
- K. Remove surplus backfill materials from site.
- L. Leave fill material stockpile areas free of excess fill materials.

3.4 FIELD QUALITY CONTROL

- A. Perform laboratory material tests in accordance with ASTM D1557.
- B. Perform in place compaction tests in accordance with the following:
 - 1. Density Tests: ASTM D1556, ASTM D2167, or ASTM D2922.
 - 2. Moisture Tests: ASTM D3017.
- C. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- D. Proof roll compacted fill surfaces under slabs-on-grade, pavers, and paving.

3.5 PROTECTION OF FINISHED WORK

- A. Reshape and re-compact fills subjected to vehicular traffic.

END OF SECTION 31 23 23

SECTION 312500 - EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

SECTION 312500 - EROSION AND SEDIMENTATION CONTROLS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Inlet Protection.
 - 2. Silt fence.
 - 3. Stabilized construction entrance/decontamination pad.

1.2 QUALITY ASSURANCE

- A. Perform Work in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey as promulgated by the New Jersey State Soil Conservation Committee, latest edition.

1.3 PRE-INSTALLATION MEETINGS

- A. Convene minimum one week prior to commencing work of this section.

PART 2 EXECUTION

2.1 EXAMINATION

- A. Verify gradients and elevations of base or foundation for other work are correct.

2.2 SITE STABILIZATION

- A. Incorporate erosion control devices indicated on the Drawings into the Project at the earliest practicable time.
- B. Construct, stabilize and activate erosion controls before site disturbance within tributary areas of those controls.
- C. Stockpile and waste pile heights shall not exceed 35 feet. Slope stockpile sides at 2: 1 or flatter.
- D. Stabilize any disturbed area of affected erosion control devices on which activity has ceased and which will remain exposed for more than 20 days.
 - 1. During non-germinating periods, apply mulch at recommended rates.
 - 2. Stabilize disturbed areas which are not at finished grade and which will be disturbed within one year.
 - 3. Stabilize disturbed areas which are either at finished grade or will not be disturbed within one year.

E. Stabilize diversion channels, sediment traps, and stockpiles immediately.

2.3 FIELD QUALITY CONTROL

A. Inspect erosion control devices on a weekly basis and after each runoff event. Make necessary repairs to ensure erosion and sediment controls are in good working order.

B. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

2.4 CLEANING

A. When sediment accumulation in sedimentation structures has reached a point one-third depth of sediment structure or device, remove and dispose of sediment.

B. Do not damage structure or device during cleaning operations.

C. Do not permit sediment to erode into construction or site areas or natural waterways.

D. Clean channels when depth of sediment reaches approximately one half channel depth.

2.5 PROTECTION

A. Immediately after placement, protect paving from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Protect paving from elements, flowing water, or other disturbance until curing is completed.

END OF SECTION 31 25 00

SECTION 329219 - SEEDING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Fertilizing.
 - 2. Seeding.
 - 3. Mulching.
 - 4. Maintenance.

1.2 REFERENCES

- A. ASTM International:
 - 1. ASTM C602 - Standard Specification for Agricultural Liming Materials.

1.3 DEFINITIONS

- A. Weeds: Vegetative species other than specified species to be established in given area.

1.4 SUBMITTALS

- A. Product Data: Submit data for seed mix, fertilizer, mulch, and other accessories.
- B. Manufacturer's Certificate: Certify Products that meet or exceed specified requirements.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: Include maintenance instructions, cutting method and maximum grass height; types, application frequency, and recommended coverage of fertilizer.

1.6 QUALITY ASSURANCE

- A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.
- B. Perform Work according to local and state standards.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.
- B. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.8 MAINTENANCE SERVICE

- A. Maintain seeded areas immediately after placement until grass is well established and exhibits vigorous growing condition for two cuttings.

PART 2 - PRODUCTS

2.1 SEED MIXTURE

- A. Furnish materials in accordance with plans.
- B. Description:
 - 1. Hard Fescue: 130 percent.
 - 2. Chewing Fescue: 45 percent.
 - 3. Strong Creeping Red Fescue: 45 percent.
 - 4. Perennial Ryegrass: 10 percent.

2.2 ACCESSORIES

- A. Mulching Material: Oat or wheat straw, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are **not** acceptable.
- B. Fertilizer: Commercial grade; recommended for grass; of proportion necessary to eliminate deficiencies of topsoil in accordance with the Freehold Soil Conservation District standards.
- C. Lime: ASTM C602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent.
- D. Water: Clean, fresh and free of substances or matter capable of inhibiting vigorous growth of grass.
- E. Herbicide: in accordance with the Freehold Soil Conservation District standards.
- F. Stakes: Softwood lumber, chisel pointed.
- G. String: Inorganic fiber.

2.3 SOURCE QUALITY CONTROL

- A. Analyze to ascertain percentage of nitrogen, phosphorus, potash, soluble salt content, organic matter content, and pH value.
- B. Provide recommendation for fertilizer and lime application rates for specified seed mix as result of testing.
- C. Testing is not required when recent tests and certificates are available for imported topsoil. Submit these test results to testing laboratory. Indicate, by test results, information necessary to determine suitability.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify prepared soil base is ready to receive the Work of this section.

3.2 FERTILIZING

- A. Apply lime at application rate in accordance with the Freehold Soil Conservation District standards. Work lime into top 6 inches (150 mm) of soil.
- B. Apply fertilizer at application rate in accordance with the Freehold Soil Conservation District standards.
- C. Apply after smooth raking of topsoil and prior to roller compaction.
- D. Do not apply fertilizer at same time or with same machine used to apply seed.
- E. Mix fertilizer thoroughly into upper 2 inches of topsoil.
- F. Lightly water soil to aid dissipation of fertilizer. Irrigate top level of soil uniformly.

3.3 SEEDING

- A. Apply seed at rate of 2 lbs per 1000 sq ft evenly in two intersecting directions. Rake in lightly.
- B. Do not seed areas in excess of that which can be mulched on same day.
- C. Planting Season: in accordance with the Freehold Soil Conservation District standards.
- D. Do not sow immediately following rain, when ground is too dry, or when winds are over 12 mph (19 km/h).
- E. Roll seeded area with roller not exceeding 112 lbs/linear foot (15.5 kg/m).

- F. Immediately following seeding and compacting, apply mulch to thickness of 1/8 inches (3 mm). Maintain clear of shrubs and trees.
- G. Apply water with fine spray immediately after each area has been mulched. Saturate to 4 inches (100 mm) of soil.

3.4 SEED PROTECTION

- A. Identify seeded areas with stakes and string around area periphery.

3.5 MAINTENANCE

- A. Mow grass at regular intervals to maintain at maximum height of 2-1/2 inches (65 mm). Do not cut more than 1/3 of grass blade at each mowing. Perform first mowing when seedlings are 40 percent higher than desired height.
- B. Neatly trim edges and hand clip where necessary.
- C. Immediately remove clippings after mowing and trimming. Do not let clippings lay in clumps.
- D. Water to prevent grass and soil from drying out.
- E. Control growth of weeds. Apply herbicides. Remedy damage resulting from improper use of herbicides.
- F. Immediately reseed areas showing bare spots.
- G. Repair washouts or gullies.
- H. Protect seeded areas with warning signs during maintenance period.

END OF SECTION 32 92 19

SECTION 33 05 13 - MANHOLES AND STRUCTURES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Cast in Place concrete manholes and structures with masonry transition to cover frame, covers, anchorage, and accessories.
 2. Modular precast concrete manhole and structures with tongue-and-groove joints with masonry transition to cover frame, covers, anchorage, and accessories.

1.2 REFERENCES

- A. American Concrete Institute:
1. ACI 318 - Building Code Requirements for Structural Concrete.
 2. ACI 5301 – Standard Specifications for Concrete Construction.
- B. ASTM International:
1. ASTM A48/A48M - Standard Specification for Gray Iron Castings.
 2. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 3. ASTM C55 - Standard Specification for Concrete Brick.
 4. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures.
 5. ASTM C923 - Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes and Laterals.

1.3 DESIGN REQUIREMENTS

- A. Equivalent strength: Based on structural design of reinforced concrete as outlined in ACI 318.
- B. Design of Lifting Devices for Precast Components: In accordance with ASTM C913.
- C. Design of Joints for Precast Components: In accordance with ASTM C913; maximum leakage of 0.025 gallons per hour per foot of joint at 3 feet of head.

1.4 SUBMITTALS

- A. Shop Drawings: Indicate manhole and structure locations, elevations, piping, conduit, and sizes and elevations of penetrations.
- B. Product Data: Submit cover and frame construction, features, configuration and, dimensions.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with NJDOT Standard Specifications for Road and Bridge Construction, Section 602, as currently amended.

- B. Maintain one copy of each document on site.

1.6 QUALIFICATIONS

- A. Precast Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years documented experience.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Comply with precast concrete manufacturer's instructions for unloading, storing and moving precast manholes and structures.
- B. Store precast concrete manholes and structures to prevent damage to Owner's property or other public or private property. Repair property damaged from materials storage.
- C. Mark each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers shown on Drawings to indicate its intended use.

1.8 ENVIRONMENTAL REQUIREMENTS

- A. Maintain materials and surrounding air temperature to minimum 50 degrees prior to, during, and 48 hours after completion of masonry work.
- B. Cold Weather Requirements: ACI 530.

PART 2 PRODUCTS

- A. Materials and Resources Characteristics:
 - 1. Recycled Content Materials: Furnish materials with maximum available recycled content.
 - 2. Regional Materials: Furnish materials extracted, processed, and manufactured within 500 miles of Project site.

2.2 MANHOLES AND STRUCTURES

- A. Manufacturers:
 - 1. Flemington Precast & Supply, L.L.C.
 - 2. J.F. Gillespie, Inc.
 - 3. Northeast Concrete Products
 - 4. Oldcastle Precast, Inc.
 - 5. Campbell Foundry
 - 6. Or Approved Equal
- B. Manhole and Structure Sections: Reinforced precast concrete in accordance with ASTM C478 with gaskets in accordance with ASTM C923
- C. Reinforcement: Formed steel wire, galvanized finish, unfinished.

2.3 FRAMES AND COVERS

A. Manufacturers:

1. Barry Pattern & Foundry Co., Inc
2. East Jordan Iron Works, Inc.
3. McKinley Iron Works, Inc.
4. Neenah Foundry
5. Campbell Foundry
6. Or Approved Equal

B. Product Description: ASTM A48/A48M, Class 30B Cast iron construction, machined flat bearing surface, removable lockable, boltable, lid, closed, open, checkerboard grille, cover design; sealing gasket;

2.4 COMPONENTS

- A. Manhole and Structure Steps: Formed galvanized steel, aluminum, FRP, rungs; 3/4 inch diameter. Formed integral with manhole and structure] sections.
- B. Strap Anchors: Bent steel shape, galvanized.

2.5 CONFIGURATION

- A. Shaft Construction: Concentric with concentric, eccentric cone top section; lipped male/female dry joints; sleeved to receive pipe
- B. Shape: Cylindrical or as indicated on Drawings.
- C. Clear Inside Dimensions: As indicated on Drawings.
- D. Design Depth: As indicated on Drawings.
- E. Clear Cover Opening: As indicated on Drawings.
- F. Pipe Entry: Furnish openings as indicated on Drawings
- G. Steps: As indicated on Drawings.

2.6 FINISHING - STEEL

- A. Galvanizing: ASTM A123/A123M; hot dip galvanize after fabrication.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify items provided by other sections of Work are properly sized and located.

- B. Verify built-in items are in proper location, and ready for roughing into Work.
- C. Verify correct size of manhole and structure excavation.

3.2 PREPARATION

- A. Coordinate placement of inlet and outlet pipe or duct sleeves required by other sections.
- B. Do not install structures where site conditions induce loads exceeding structural capacity of structures.
- C. Inspect precast concrete structures immediately prior to placement in excavation to verify structures are internally clean and free from damage. Remove and replace damaged units.
- D. Clean existing impacted structures by removing any debris or sediment prior to modification.

3.3 INSTALLATION

- A. Excavation and Backfill:
 - 1. Excavate for manholes and structures in location and to depth shown on Drawings. Provide clearance around sidewalls of structure for construction operations.
- B. Place base pad, trowel top surface level.
- C. Place manhole and structure sections plumb and level, trim to correct elevations, anchor to base pad.
- D. Install manholes and structures supported at proper grade and alignment on coarse aggregate bedding, No. 57 or as shown on Drawings.
- E. Backfill excavations for manholes and structures with fill.
- F. Form and place manhole and structures cylinder plumb and level, to correct dimensions and elevations. As Work progresses, build fabricated metal items.
- G. Cut and fit for pipes and sleeves.
- H. Grout base of shaft sections to achieve slope to exit piping. Trowel smooth. Contour to form continuous drainage channel
- I. Set cover frames and covers level without tipping, to correct elevations.
- J. Coordinate with other sections of Work to provide correct size, shape, and location.

3.4 PRECAST CONCRETE MANHOLE AND STRUCTURE INSTALLATION

- A. Lift precast components at lifting points designated by manufacturer.

- B. When lowering manholes and structures into excavations and joining pipe to units, take precautions to ensure interior of pipeline and structure remains clean.
- C. Set precast structures bearing firmly and fully on crushed stone bedding or as Shown on Drawings.
- D. Assemble multi-section structures by lowering each section into excavation. Lower, set level, and firmly position base section before placing additional sections.
- E. Remove foreign materials from joint surfaces and verify sealing materials are placed properly. Maintain alignment between sections by using guide devices affixed to lower section.
- F. Joint sealing materials may be installed on site or at manufacturer's plant.
- G. Verify manholes and structures installed satisfy required alignment and grade.
- H. Remove knockouts or cut structure to receive piping without creating openings larger than required to receive pipe. Fill annular space with mortar.
- I. Cut pipe to finish flush with interior of structure.
- J. Shape inverts through manhole and structures as shown on Drawings.

3.5 CAST-IN-PLACE CONCRETE MANHOLE AND STRUCTURE INSTALLATION

- A. Prepare crushed stone bedding or other support system shown on Drawings, to receive base slab as specified for precast structures.
- B. Place and cure concrete.

3.6 FRAME AND COVER INSTALLATION

- A. Set frames using mortar and masonry. Install radially laid concrete brick with 1/4 inch thick vertical joints at inside perimeter. Lay concrete brick in full bed of mortar and completely fill joints. Where more than one course of concrete brick is required, stagger vertical joints.
- B. Set frame and cover 2 inches above finished grade for manholes and structures with covers located within unpaved areas to allow area to be graded away from cover beginning 1 inch below top surface of frame.

3.7 FIELD QUALITY CONTROL

- A. Test concrete manhole and structure sections in accordance with ASTM C497
- B. Test cast-in-place concrete.
- C. Vertical Adjustment of Existing Manholes and Structures:
 - 1. Where required, adjust top elevation of existing manholes and structures to finished grades shown on Drawings.

2. Reset existing frames, grates and covers, carefully removed, cleaned of mortar fragments, to required elevation in accordance with requirements specified for installation of castings.
3. Remove concrete without damaging existing vertical reinforcing bars when removal of existing concrete wall is required. Clean vertical bars of concrete and bend into new concrete top slab or splice to required vertical reinforcement, as indicated Drawings.
4. Clean and apply sand-cement bonding compound on existing concrete surfaces to receive cast-in-place concrete.

END OF SECTION 33 05 16

SECTION 330513.13 - MANHOLE AND INLET GRADE ADJUSTMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Raising manhole and Inlets frames and covers.
2. Lowering manhole and Inlets frames and covers.
3. Replacing manhole and Inlets frames and covers.

1.2 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO M306 - Standard Specification for Drainage, Sewer, Utility, and Related Castings.

B. ASTM International:

1. ASTM A48 - Standard Specification for Gray Iron Castings.
2. ASTM C32 - Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
3. ASTM C478 - Standard Specification for Precast Reinforced Concrete Manhole Sections.
4. ASTM C531 - Standard Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
5. ASTM C642 - Standard Test Method for Density, Absorption, and Voids in Hardened Concrete.
6. ASTM C877 - Standard Specification for External Sealing Bands for Concrete Pipe, Manholes, and Precast Box Sections.
7. ASTM C990 - Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
8. ASTM D395 - Standard Test Method for Rubber Property - Compression Set.
9. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension.
10. ASTM D573 - Standard Test Method for Rubber - Deterioration in an Air Oven.
11. ASTM D575 - Standard Test Methods for Rubber Properties in Compression.
12. ASTM D2240 - Standard Test Method for Rubber Property - Durometer Hardness.
13. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
14. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.

1.3 SUBMITTALS

- A. Product Data: Submit data for manhole covers and riser rings construction, features, configuration, and dimensions.
- B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- C. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.
- D. Qualifications Statements:
 - 1. Submit qualifications for manufacturer and installer.
 - 2. Submit manufacturer's approval of installer.

1.4 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual grade-adjusted elevation of manhole.
- B. Project Record Documents: Record actual grade-adjusted elevation of inlet.

1.5 QUALITY ASSURANCE

- A. Perform Work in accordance with NJDOT Standard Specifications for Road and Bridge Construction, Section 602, as currently amended.
- B. Maintain one of each standard affecting Work of this Section on Site.

1.6 QUALIFICATIONS

- A. Precast Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.
- B. Protect materials from damage by storing in secure location.

1.8 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements prior to fabrication.
 - 2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 MANHOLE FRAMES AND COVERS

- A. Manufacturers:
1. Manufacturers:
 2. Flemington Precast & Supply, L.L.C.
 3. J.F. Gillespie, Inc.
 4. Northeast Concrete Products
 5. Oldcastle Precast, Inc.
 6. Campbell Foundry
 7. Or Approved Equal

2.2 RISER RINGS

- A. Riser Rings:
1. 4 Inches to 6 Inches Thick:
 - a. Material: Precast concrete.
 - b. Comply with ASTM C478.
 2. Less than 4 Inches Thick:
 - a. Material: Cast iron.
 - b. Comply with AASHTO M306.
 3. Rubber Seal Wraps:
 - a. Wraps and Band Widths: Conform to ASTM C877, Type III.
 - b. Cone/Riser Ring Joint: Minimum 3 inches overlap.
 - c. Frame/Riser Ring Joint: 2 inches overlap.
 - d. Additional Bands: Overlap upper band by 2 inches.
- B. Accessories:
1. Joint Sealant: Comply with ASTM C990.
 2. Bolts:
 - a. Stainless Steel: Comply with ASTM F593.
 - b. Galvanized: Comply with ASTM F1554.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify and locate manholes requiring grade adjustment.

3.2 PREPARATION

- A. Saw cut existing paving.
- B. Excavate.
- C. Clean manholes.
- D. Remove existing manhole frames and covers.
- E. Repair waterproofing.

3.3 INSTALLATION

A. Raising Manhole and Inlet Frames, Grates and Covers:

- 1. Locate and raise manholes to grade as indicated on Drawings.
- 2. Use flat or tapered rubber manhole rings to achieve indicated elevation for frame and cover.
- 3. Do not adjust elevation greater than 6 inches with rubber manhole rings.
- 4. Use sealant to seal joints between manhole top, rubber rings, and frame.
- 5. Reinstall removed manhole frame and cover.

B. Replacing Manhole and Inlet Frames, Grates and Covers:

- 1. Remove existing manhole frames and covers to enable reuse.
- 2. Deliver removed manhole frames and covers to Owner as maintenance materials as
- 3. Install new frames and covers for manholes as indicated on Drawings.
- 4. Adjust new frames and covers to match finished grade as indicated on Drawings.
- 5. Seal joints between manholes and manhole frames.

C. Lowering Manhole and Inlet Frames, Grates and Covers:

- 1. When modifying less than 1 foot of an inlet or manhole, set or reset the casting. When modifying 1 foot or more of an inlet or manhole, reconstruct the inlet or manhole.

D. Landscaping Restoration:

- 1. Restore grassed areas as indicated on Drawings.

END OF SECTION 33 05 13.13