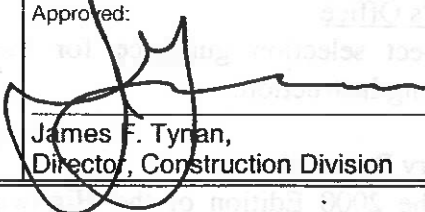


To: SUPERSEDED BY EI 06-021 EFFECTIVE 01/11/07		New York State Department of Transportation ENGINEERING INSTRUCTION	EI 04-006
Title: DESIGN GUIDANCE FOR SECTION 637 PAY ITEMS RELATED TO ENGINEER'S FIELD OFFICE			
Distribution: ☐ Manufacturers (18) ☒ Local Govt. (31) ☒ Agencies (32) ☐ Surveyors (33) ☒ Consultants (34) ☒ Contractors (39) ☐ _____ ()		Approved:  James F. Tyran, Director, Construction Division 2-6-04 Date	

ADMINISTRATIVE INFORMATION:

- This EI is effective with projects submitted for the letting of September 9, 2004. Application of this EI prior to this date is encouraged (See "IMPLEMENTATION" and EI 04-005).
- No issuances are superseded by this EI.
- The guidance provided in this EI for Designers will be incorporated into a future revision of Chapter 21 of the Highway Design Manual.

PURPOSE:

To provide selection criteria and other guidance for many of the Section 637 contract pay items relating to the Engineer's field office.

TECHNICAL INFORMATION:

- This EI releases a new Section 637 Checklist and guidance to be used to select the appropriate supplemental resources of the field office during the project design phase.
- Section 637 of the Standard and special specifications deals primarily with the Engineer's Office (a.k.a. field office) and the various equipment and services related to field office activities. Examples of some Section 637 resources are: computers, printers, mobile telephones, laboratory building, etc.
- Several new resources are now available to the Designer to help in the selection of Section 637 contract pay items for inclusion in the Engineer's Estimate. The following resources are available from the NYSDOT website at www.dot.state.ny.us/constr/637/section637.html :
 - Section 637 Checklist - A Section 637 Checklist is now available to help the Designer identify the recommended list of Section 637 contract pay items and quantities to be incorporated into the estimate and convey these details to other interested parties for review.
 - Cost Estimates - Along with the Section 637 Checklist, suggested unit costs for various contract pay items are provided for assistance with developing the Engineer's Estimate.
 - Pay Item Selection - Recommended contract pay items to be included in the Engineer's Estimate based on the different variables.

- **Project Selection Criteria**

Project selection criteria for several Section 637 resources are provided. The project selection criteria are general guidance. Divergence from the recommended selection criteria is acceptable if it will better meet the project needs or will add cost-effective capabilities and quality improvements to the construction work environment.

Office/Structures

- Engineer's Office

The project selection guidance for the Engineer's Office is provided in a separate Engineering Instruction.

- Laboratory Building

As per the 2000 Edition of the Highway Design Manual, Chapter 9, Subsection 9.4.4-Proposal:

"The contract should include a payment item for a laboratory building when one is needed. It should be included on any projects that will require significant field testing or processing samples for testing. On projects requiring minimal field testing or processing of samples, the Engineer's field office will serve this purpose. The Regional Geotechnical Engineer should be consulted regarding need for a laboratory building."

- Concrete Cylinder Curing Box

Any contract which will have structural concrete (bridge, major culvert, etc.) poured on-site should include the concrete cylinder curing box contract pay item in the Engineer's Estimate.

Computers

Refer to www.dot.state.ny.us/constr/637/section637.html for the recommended computer equipment selections for the Engineer's Office based on different variables. Following are some general criteria for assigning office technology equipment.

Every person that spends a significant amount of time in the field office should be assigned a computer (desktop computer, laptop computer, tablet computer, etc.). Inspectors and others who spend a majority of their time away from the field office may not require a one-to-one computer/person ratio. In these cases, computers should be shared, with approximately one computer for every 2 to 3 persons. When estimating the amount of in-office time spent by staff, consider both their anticipated daily and seasonal assignments (staff may spend all winter in the field office performing tasks which may require regular access to a computer).

When selecting computer equipment, consider the anticipated contract work conditions and personnel assignments. For instance, if the contract will be a mobile operation where the Engineer works out of a vehicle (no office), consider supplying a laptop and portable printer.

The type of computer to be assigned depends on the expected use.

- Desktop Computers - Are for general in-office desktop computing needs.

- Laptop Computers - Provide the versatility of in-office as well as mobile capabilities. Good for personnel who do work in and out of the office. (Note: Remember to also provide a portable computer docking system for in-office use of the laptop.)

- **Tablet Computers** - Provide many of the capabilities of the laptop computer, but also provide manual on-screen entry and data access capabilities (via stylus, electronic pen, etc.). Good for field inspection duties or other situations where the user will be entering or viewing electronic data in a mobile, non office environment. A reasonable need for the tablet computer capabilities should exist to justify providing a tablet computer over a standard laptop computer.
- **Handheld Computers** (Pocket PCs) - Are a very mobile and compact option for users that must sacrifice functionality for extreme portability. In general, the other computers should be considered first before considering a handheld computer. Specific uses of the handheld computers should be identified before assigning them to field personnel, as many of the computer applications and file formats that can operate on the desktop and laptop computer systems may not be able to operate on the handheld computers. Approval from the Regional Construction Group and the appropriate Regional Automation Support person should be sought before assigning handheld computers to staff.

Printers

Every office should have the ability to print 8.5"x11" (black & white), 8.5"x11"(color), and 11"x17" (black & white) prints. This can be achieved by one printer or by a combination of printers (including the multifunction machine, if applicable). Upon request from the Regional Construction Group, there may be a need to provide large-scale plotting capabilities on certain special projects.

Examples of combinations of printers that could be provided:

(Refer to www.dot.state.ny.us/constr/637/section637.html for additional guidance)

Printer Package	General Criteria for When to Use	Possible Printers Combinations to be Provided
A	For small to mid-sized offices	1 - 11" x 17" printer (black and white) 1 - 8.5 x 11 printer (color)
B	For mid-sized offices	1 - 11" x 17" printer (black and white) 1 - 8.5" x 11" printer (black & white) 1 - 8.5" x 11" printer (color)
C	For small office setups with major 'utility' printing needs	1 - 11" x 17" printer (color)
D	For mid-sized offices which would benefit from the ability to print color plan sheets	1 - 11" x 17" printer (color) 1 - 8.5" x 11" printer (black & white)
E	No Office, Field personnel works in a highly mobile environment	1 - portable printer

Notes: The 11" x 17" printer is capable of 11" x 17" and 8.5" x 11" printing. 'Utility' printing needs refers to general day-to-day black and white letter-sized (8.5" x 11") printing needs. Depending on its capabilities, a 'multifunction machine' may be a reasonable alternate printing device for some of the printers. This table only provides basic guidelines, different combinations of devices can be selected. On larger contracts, additional printers may be necessary.

- **11" x 17" Printer (black & white/color)**

Every office should have an 11 x 17 printer. It should be capable of producing both 11" x 17" and 8.5" x 11" prints.

If color 11" x 17" prints would be significantly useful for clarity of congested contract plan sheets (example: for color coding various design elements on projects with numerous utilities or other miscellaneous design elements which are in close proximity to other data on the plan sheets) then a color 11" x 17" printer should be provided.

- 8.5" x 11" Printer (black and white/color)

For mid-sized offices or larger (i.e. has 4 or more computers), an additional utility 8.5" x 11" printer (black & white) should be provided.

If an office does not have an 11" x 17" printer capable of color printing, then a color 8.5" x 11" printer should be provided.

- Portable Printer (black and white/color)

This pay item should not be included in most contracts. This pay item should only be included on contracts where there is a significant need for personnel to print from a remote, stand-alone environment (their vehicle, etc.) on a regular basis.

Computer Peripherals

- Local Area Network (LAN)

Every office with two or more computers should have a local area network (LAN).

- Scanner / Multifunction Machine

Every office should have the ability to scan documents and images. This function can be achieved by a scanner or a multifunction machine (print/scan/FAX/copy).

- Portable Computer Docking System

If portable computers (laptops, tablet PCs, etc.) will be brought into a field office on a regular basis, the field office should be equipped with the appropriate number of portable computer docking systems. A portable computer docking system should be provided for each portable computer that will be used in the field office for a significant amount of time. When portable computers will be brought into the field office on a less frequent basis, one portable computer docking system may be able to service multiple (2 to 3) portable computers. Compatibility of the docking system with the potentially various types of portable computers should be verified before assigning one docking system to multiple computers.

- Office Technology Supplies

Most Engineer's Estimates should include the Office Technology Supplies contract pay item. The contract pay item's intended use is to provide necessary office technology supplies (Examples include: storage media, software, printer toner, or paper) for computers (State-supplied or Contractor-provided) in situations when these materials are unavailable from the State.

Communications

There should be a communication device supplied for each person assigned to the contract. The contract proposal special note should indicate the number of mobile telephones, two-way radios, and pagers to be supplied by the Contractor.

- Mobile Telephone(s)

Every contract should have the mobile telephone contract pay item included in the Engineer's Estimate. A special note should be added to the contract proposal to indicate the number of phones to be supplied by the Contractor. During the design phase, the Regional Construction Group should recommend the number of phones to be included in the estimate. If not, for estimation purposes, assume that a phone will be supplied for each person estimated to be assigned to the contract. During the construction phase, the Regional Construction Group can then determine the appropriate number of mobile phones to actually be supplied.

When selecting communication devices consider the fact that some mobile telephones can function as just a two-way radio, without the full telephone service having to be provided. This may allow for personnel to be equipped with the same type of communications devices but with varying degrees of service capabilities (telephone with two-way radio capabilities or just two-way radio capabilities).

- Two-Way Radio System

In general, if the mobile telephones can provide adequate on-site communications, then the two-way radio system is not necessary. (Reminder: Mobile telephones can be used just as a two-way radio.) However, if there is inadequate mobile telephone service, then the two-way radio system contract pay item can be used to provide the on-site communications system.

The two-way radio system includes handheld, two-way radio units which can be useful for various uses (flagging operations or any short-term/short-range communication need). Therefore, it is beneficial to remember that the two-way radio system contract pay item can be used to supply just select components of the system (example: just the handheld radios), without all the components being required to be provided.

- Pager(s)

For contracts where the Regional Construction Group indicates that a mobile phone is not necessary for each person assigned to the contract, yet there is a need for providing a method of contacting personnel over long distances or from off-site or non-NYSDOT sources, the pager contract pay item should be included in the Engineer's Estimate for the appropriate number of staff.

Miscellaneous Devices

- Distance Measuring Device

These are vehicle-mounted devices which provide more precise distance measurements than from the vehicle's odometer. This equipment is not necessary on most contracts, and should only be included in the Engineer's Estimate upon the Regional Construction Group's request.

- Digital Camera

Every contract should have a digital camera, whether via a specific digital camera contract pay item or from another source.

Contract Administration

▪ CPM Scheduling

The project selection guidance for CPM Scheduling is provided in a separate Engineering Instruction (EI 04-008 or current guidance).

▪ CHAMP®

The Designer shall incorporate the CHAMP® contract pay item into the Engineer's Estimate for projects where the total Engineer's Estimate is \$100,000 or greater. Include the pay item in an estimate share with Federal participation. If no Federal participation exists for the contract, include the pay item in a State share (i.e., do not put it in a local share).

▪ Partnering Workshop

The project selection guidance for the Partnering Workshop is provided in a separate Engineering Instruction (EI 99-004 or current guidance).

Inspection

▪ Inspection Vehicle

The inspection vehicle contract pay item typically should not be included in the Engineer's Estimate. Only when it is anticipated that State-provided vehicles will be unavailable or incapable of providing the necessary transportation services should it be considered as an option. This pay item should only be included in the Engineer's Estimate upon the Regional Construction Group's request.

If an inspection vehicle is included in the Engineer's Estimate, after a low bidder has been identified, there is an approval process by which the actual need and cost-effectiveness of the contract pay item is evaluated.

▪ Boat for Inspection

The boat-for-inspection contract pay item should be included in the Engineer's Estimate only when it is anticipated that Department forces will need water transportation services. The contract pay item should only be specified for the anticipated duration of need. Input from the Regional Construction Group should be sought.

IMPLEMENTATION:

• Action by the Designer

- The Designer is responsible for including the appropriate Section 637 contract pay items into the Engineer's Estimate to provide a functional office environment for the construction phase of the contract. Input should be sought from the Regional Construction Group to insure that the Section 637 resources (computers, printers, mobile telephones, etc.) are properly estimated to meet the anticipated needs.
- The Designer should submit a completed Section 637 Checklist, along with any related contract proposal special notes, to the Regional Construction Group for review as part of the advanced detail plans (ADP) review process.
- Refer to www.dot.state.ny.us/constr/637/section637.html for the current checklist, contract pay item cost estimates, and default contract pay item selections based on different variables.

- Section 637 contains several special specifications which have associated special notes for the technical requirements for the pay item equipment. The Designer will include the special specifications in the contract proposal documents along with the corresponding technical requirement special notes. The Designer shall use the most current technical requirement special notes, which are available from the NYSDOT website at: <http://www.dot.state.ny.us/constr/637/section637.html>.
- Section 637 contains several special specifications which use a 'Dollar Cents' pay unit. For these 'Dollar Cents' pay items, the actual quantity of equipment units to be provided are not defined on the Estimate of Quantities sheets of the contract proposal. Therefore, the actual quantity of equipment units to be provided (example: "2" desktop computers, "3" laptop computers, etc.) needs to be identified on the special note. The Designer is responsible for filling in these quantities on each special note.
- Contract pay items with time-based pay units (month, VCW, etc.) should be estimated for the scheduled duration of construction plus 2 months.
- Action by Engineer
 - Many of the technical requirements for the various contract pay items are in place to increase the compatibility, connectivity, and support of various Department computer applications and functions. Before accepting substitutions or upgrades to items, confer with the appropriate automation support personnel to confirm whether it should be allowed. For example, accepting a computer with a newer Windows operating system than the technical requirement specifies, could generate various compatibility problems with software or other hardware.
 - With regards to the use of the digital camera, refer to the Contract Administration Manual (CAM) §90 - 'Photographs / Videotape' section for direction on how digital photos shall be taken, stored, cataloged, and transmitted.
- Digital Camera
 - The desktop computer(s) should contain a software application for cataloging/indexing the images taken with the digital camera. Depending on the software, the application may have the capability to generate an index file that provides thumbnails (small images of the photographs) along with any descriptions that have been added to the image (date & time, location, PIN, BIN, etc.). When looking for images of a particular nature, these descriptions are useful search tools. While in construction, it may be necessary to sort through hundreds of images. Once archived, it may be necessary to sort through thousands of images from various projects. Hence, time and consideration should be spent on creating project index files and image descriptions.
 - Both temporary storage (during construction) and long term storage (archiving) of images should be done via the Department's current method of storing project data [Examples: Electronically on a data server (ProjectWise) or on separate media (CDs, DVDs, etc.)]. Regardless of storage method, the files should be properly secured and accessible, and the method should be acceptable to all affected parties.
 - When transferring images, it is important to ensure that the information regarding the date and time when the photograph was taken is not lost. When transferring data, verify that all involved parties are capable of retrieving the data (Examples: all parties have access to the data server or

EI 04-006 Page 8 of 8

have the computer hardware to handle the media (Cds, DVDs, etc.) used to transmit the data. When transferring or archiving information via data media (CD, DVD, etc.), ensure the media is properly formatted and 'closed' such that it can be read from other computers.

TRANSMITTED MATERIALS:

None.

BACKGROUND:

There is a need for better guidance for Designers on the selection of contract pay items relating to the resources associated with the Engineer's Office. In addition, there continue to be periodic changes in Section 637 and sometimes it is difficult for the Designer to determine which specifications the Department recommends to be used and under which conditions. This EI introduces resources to the Designer to assist in development of the Engineer's Estimate with regards to several Section 637 contract pay items (Computers, communications, etc.).

CONTACT:

Direct questions regarding this Engineering Instruction to Rob Howland of the Construction Division at Phone: (518) 457-6472, Email: mo-construction@dot.state.ny.us. When making inquiries, include the EI number and title along with the contact person's name in the phone message/email.